New Mothers' Survey

1999

Division of Maternal and Child Health
North Dakota Department of Health

North Dakota
New Mothers' Survey
1999

A Project of the
Division of Maternal and Child Health
Prenatal Committee

Governor
John Hoeven

State Health Officer
Terry Dwelle, M.D.

Author: Karen J. Oby, M.P.H., L.R.D.
Editors: Loreeta L. Frank, Lynne Wise and Maternal and Child Health Staff
Statistical Analysis: Babu Cheku, M.D.
March 2002

North Dakota Department of Health
600 E. Boulevard Ave. Dept. 301
Bismarck, N.D. 58505-0200
Telephone: 701.328.2493
Fax: 701.328.1412

Inquiries may be emailed to koby@state.nd.us.
The report is also available online at www.health.state.nd.us.

Table of Contents

Introduction and Survey Methods

Purpose

As part of its mission to ensure healthy women, children and families, the North Dakota Department of Health, Division of Maternal and Child Health, conducts periodic surveys of new mothers. This report outlines the results of the second survey, conducted in 1999, and compares results to the 1996 survey.

The mothers were questioned about preconceptual behaviors such as tobacco and alcohol use and about health care and education received during pregnancy. These mothers' infants were about 3 months old at the time of the survey, so questions also were asked about infant health care and behaviors such as car safety seat use and infant sleep position.

Questions in the survey were chosen to provide information to help the Division of Maternal and Child Health develop better program interventions. The information should be useful to both private and public health care providers in tailoring services to the needs of prenatal clients and infants in North Dakota.

Methods

An 88-question survey was mailed February through May 1999 to 2,017 mothers whose babies were born in North Dakota during October, November and December 1998 and January 1999, and who had given permission on the birth certificate application to receive Department of Health-initiated mailings. As an incentive to complete the survey, parents could enter their names in a drawing for toddler car seats (two were given away). An addressed, stamped postcard for the drawing was enclosed in the survey mailing to assure parents that their names would not be attached to the surveys. For those not responding, a second survey was mailed about one month later. A total of 1,067 completed surveys were returned by the time data analysis began in May 1999, for a response rate of 53 percent. About 90 surveys were received in June but were not included in this analysis. Since the mailing lists for the survey were generated from the Division of Vital Records, all 1,076 were matched with North Dakota resident birth certificate demographic and health information.

Matching birth certificate information with the survey results, as well as the statistical analysis of this project, was accomplished through the MCH Information Resource Center Graduate Student Internship Program. A candidate for a master's degree in public health was assigned to the North Dakota Department of Health for three months to work on this project.

Contact Information

For copies of the survey questions or for more detailed information about the survey, contact:

Karen J. Oby, MPH, LRD
MCH/WIC Nutrition Services Director
North Dakota Department of Health
Division of Maternal and Child Health
701. 328.2493
1.800.472.2286

1999 New Mothers' Survey Highlights

- Of the many substances that potentially can harm the developing fetus, tobacco affects the most pregnancies in North Dakota. Twenty-seven percent of the survey respondents smoked prior to pregnancy. This rate is 5 percent higher than the rate reported in the 1996 survey. Significantly more women with lower incomes smoked compared to those with higher incomes.
- For pregnant women, the most important step in addressing tobacco use and dependence is screening for tobacco use during prenatal visits. Ninety-seven percent of smokers remember being asked if they smoked. However, less than three-fourths of smokers remembered being told of the harm smoking does to the fetus, and only about one-half remembered being told to quit smoking.
- Although 96 percent of women remembered being asked if they smoked, only 84 percent remembered being asked by a health care worker if they drank alcohol. Twenty-eight percent reported receiving no advice about alcohol use during pregnancy.
- More women reported taking a vitamin supplement every day during the three months prior to pregnancy in the 1999 survey (38%) compared to the 1996 survey (30%). In the 1999 survey, fewer women (34%) remembered hearing from their health care provider about the need for folic acid to prevent birth defects in subsequent pregnancies than in the 1996 survey (55%).
- Sixty percent of the respondents said they had planned their pregnancies (wanted to be pregnant now or would have liked to be pregnant sooner). Respondents who reported that they received Medicaid support or participated in the WIC Program were less likely to report that their pregnancies were planned (29% and 36% respectively).
- Fifty-eight percent of the women who identified their pregnancies as unintended were not using any form of birth control. Women who identified their pregnancies as unintended were slightly less likely to begin prenatal care in the first trimester (84% to 90%).
- Infections from handling dirty kitty litter, eating undercooked meats and consuming other contaminated food can be dangerous to the unborn child. Only 28 percent of the survey respondents remembered their health care provider talking about the importance of thoroughly cooking meat. Fifty-two percent remembered discussing if they had or took care of a cat.
- Less than 10 percent of survey respondents remember discussing the issue of fish and mercury contamination with their health care provider. Women who plan to become pregnant, are pregnant or are breastfeeding should limit their consumption of fish caught in North Dakota and neighboring states and provinces. All species and sizes of fish contain mercury; however, it is the larger fish of each species that contain higher levels of mercury.
- Regular, moderate exercise during pregnancy may result in a more comfortable pregnancy and easier labor. Only 28 percent of respondents reported maintaining moderate levels of physical activity, the same percentage that was reported in the 1996 New Mothers' Survey.
- The survey asked the women to identify the most useful source of education about how to take care of themselves during pregnancy. First-time mothers reported that the "most useful sources of prenatal education were books, magazines and other information that I found for myself," followed by their physicians and the educational materials provided by their clinic.
- Fewer than one-half (45%) of the respondents indicated they had visited the dentist

"for an examination and/or treatment" during pregnancy. Women who participated in WIC or whose pregnancy was paid for by Medicaid were less likely to visit the dentist during pregnancy than women with higher family incomes.

- Based upon the results of this survey, we can estimate that in 1999 more than 300 North Dakota women experienced violence during their pregnancies. Since the North Dakota Council on Abused Women's Services reported serving 144 pregnant women in 1999, this indicates that prenatal domestic abuse is underreported in North Dakota.
- Only 4 percent of respondents had no insurance or inadequate insurance for maternity services; however, 11 percent of respondents reported that they either had no insurance or inadequate insurance for their child's health care. Please note that the state health insurance program for children, Healthy Steps, did not begin enrolling clients until October 1999.
- Hospital practices have been shown to influence the success and duration of breastfeeding. For instance, giving gift packs of formula to breastfeeding mothers has been shown to decrease the duration of breastfeeding, but more than 80 percent of the women who were breastfeeding received free formula.
- Babies who sleep on their backs have the lowest rates of Sudden Infant Death Syndrome. The 1999 survey shows a significant increase in the percentage of infants sleeping on their backs (73%) compared to the 1996 survey (57%). A high percentage of infants are still placed to sleep on their sides (18%). Although much safer than stomach sleeping, there is a higher risk of SIDS for infants placed on their sides (probably due to the relative instability of this position). As in the 1996 survey, respondents who received health care through the military had a much greater rate of putting infants to sleep on their stomachs (14%) compared to those receiving care paid for by other sources (5% to 8%). Those respondents whose care was paid for by the Indian Health Service had the lowest rates of stomach sleeping (5%).
- In 1997, the Department of Health began a two-year shaken baby syndrome prevention campaign with a message of Never, Never Shake a Baby. More than 97 percent of the respondents indicated they had seen or heard the message.
- Mothers were asked if health professionals had discussed infant safety issues. Eighty-four percent of respondents reported that a doctor, nurse or other health care professional talked to them about using a car safety seat for their baby. However, only 41 percent remembered discussing other safety tips, such as crib construction, dangers of baby walkers, dangers of playpens, etc.
- Eighty-eight percent of the respondents were very or somewhat satisfied with their prenatal care visits. Although the majority wouldn't change anything, other respondents reported that their visits could have been improved if they "spent less time waiting" and "more time with the doctor or nurse."
- More than 90 percent of respondents were very or somewhat satisfied with their infant's health care visits. More than one-half of the respondents reported that "Everything was great. I wouldn't change anything" about the infant's doctor/clinic visits. The other respondents wanted more information about their infant's development, more discussion of parents' concerns, and anticipatory guidance about what to expect in future months.
- Women participating in the WIC Program reported being less satisfied with their visits than the non-WIC clients were. However, WIC respondents were more likely to rate their physicians as the most useful sources of prenatal information compared to non-WIC respondents.

Recommendations for Health Care Professionals

- Provide health messages to all women–adolescent and adult–about the importance of preconception planning to ensure a healthy pregnancy and healthy baby. Introduce, during pregnancy visits, the importance of planning birth control options for after the birth of the baby. Strengthen health classes for young girls to incorporate the signs of pregnancy as part of health curriculums. Recognizing the signs of a possible pregnancy is necessary to obtaining prenatal care early in one's pregnancy.
- Spend a little more time with your Medicaid and WIC patients; these women depend more on their health care providers for information about taking care of themselves during pregnancy. This group of women does not utilize Lamaze, prenatal classes or self-study to the extent that women with higher incomes do. These women also are more likely to have several significant stress factors that could affect their pregnancy outcomes.
- Recommend books about prenatal and infant care. Stay familiar with current resources available in local bookstores and libraries. Ask local libraries, bookstores and video stores to carry your recommended books. Give a recommended reading list to your patients. Many video stores carry a selection of free public service videos. Perhaps you could provide them a list of recommended videos or provide the actual videos to the stores.
- Initiate routine prenatal care procedures for:
  - Counseling women about smoking cessation, using a tested method such as the 5 A's process.
  - Assessing a woman's alcohol use and giving a strong "no alcohol in pregnancy" message.
  - Screening, referring and developing safety plans for victims of domestic violence.
  - Emphasizing food safety issues to prevent serious infections during pregnancy.
  - Promoting the use of multivitamin mineral supplements to prevent birth defects in subsequent pregnancies.
- Develop mechanisms to ensure access to dental care for pregnant women. Preventive oral health messages should be incorporated into all prenatal programs so that oral health is part of total health care for pregnant women. Dentists, physicians and other health care providers should encourage all women of childbearing age to seek oral health counseling and examination as soon as they know they are pregnant.
- Implement breastfeeding-friendly practices into local hospitals. Participate in a local breastfeeding coalition that works to make a breastfeeding-friendly community. Give a strong pro-breastfeeding message to all women.
- Emphasize that infants should be placed on their backs when laid down to sleep, but also address the other SIDS-related behaviors: smoking during pregnancy and in an infant's presence, not breastfeeding, laying infant on inappropriate sleeping surfaces, and sleeping in an overheated environment.
- Continue promoting the Never, Never Shake a Baby message to all parents and caretakers of infants.
- Incorporate information about the importance of pre-conception and inter-conception planning into health classes that reach young girls, adolescents and women of childbearing age. Stress the importance of healthy behaviors such as use of vitamin/mineral supplements, a healthy diet, moderate physical activity, and no tobacco or alcohol use if there is any chance of pregnancy.
- Work to implement policy and environmental changes that support healthy pregnancies, such as smoke-free worksites, increased availability of fruits and vegetables for healthy diets, and increased opportunities for physical activity in the community and at work.

Population Description

The total number of respondents for this survey was 1,067. The racial composition was 92 percent white and 7 percent American Indian. The average age of the mothers responding to the survey was 27, while that of the infants' fathers was 30.

The average household in the survey consisted of four members–two adults and two children younger than 17. More than one-half of the respondents had incomes of less than $30,000 a year. Eighty percent of the mothers were employed for some or all of their pregnancies (73% WIC and 84% of non-WIC respondents). At the time of the survey, 61 percent of the respondents were employed (47% WIC and 70% non-WIC).

Although not a random sampling of births, the large survey sample allowed us to divide the survey results into subgroups: primiparas and multiparas, and participants and non-participants of the Special Supplemental Nutrition Program for Women Infants and Children (WIC). Differences in health behaviors and perceptions of care between groups are quite apparent.

Thirty-seven percent of the survey respondents (n=397) participated in WIC during pregnancy. The WIC Program is a statewide nutrition program that provides nutrition education and nutritious foods to low- and moderate-income pregnant, breastfeeding and postpartum women, infants and children younger than five. In 1999, a family of four was eligible for the WIC Program if their annual income was less than $30,433. On the average in 1999, over 1,400 pregnant women participated each month in the North Dakota WIC Program.

Medicaid paid for pregnancy/delivery costs for 18 percent of respondents (n= 193). This population is slightly underrepresented in the survey, as Medicaid paid pregnancy/delivery costs for about 23 percent of all births in the state at the time of this survey.

Respondents Annual Income*

>$50,000	24%
$40-49,000	16%
$30-39,000	17%
$20-29,000	17%
$10-19,000	11%
<$10,000	9%
Don't know	6%

*According to the 1990 census, the median income in North Dakota for a married couple, family of four with children younger than18 was $33,110.

Population Description - con't

The respondents had slightly higher educational levels when compared to mothers of all infants born in 1999. Ninety-three percent of the mothers who responded to the survey had some education above the high school level. This compares with 90 percent for all women who delivered in 1999. More than 40 percent of the survey respondents were college graduates, compared to 31 percent of all mothers who delivered in 1999.

Survey Respondents Education Levels

Education	Mother	Father
< High school	6%	7%
High school graduate/GED	18%	23%
Some college/tech school	31%	32%
College graduate	44%	38%

Parent's Education for All 1999 Birth*

Education Level	Mother	Father
< High school	10%	6%
High school graduate/GED	26%	28%
Some college/tech school	33%	29%
College graduate	31%	27%

*NDDoH Division of Vital Records

Women who had previous pregnancies (multiparas) represented 57 percent (n=600) of the respondents; 44 percent (n=464) were first-time mothers (primiparas). Multiparas represented 60 percent of all North Dakota births in 1999, and primiparas represented 40 percent.

Planned Pregnancies

> Bearing children and forming families are among the most meaningful and satisfying aspects of adult life, and it is in this context that encouraging intended pregnancy is so central … the lives of children and their families … would be strengthened considerably by an increase in the proportion of pregnancies that are purposefully undertaken and consciously desired.
> –The Best of Intentions - Institute of Medicine, 1995

Unplanned or unintended* pregnancies reduce the opportunities for women to receive information about and make changes to diet and weight, use of folic acid, exercise, smoking and use of alcohol and drugs before they get pregnant.

Identifying and reducing environmental risks (such as exposure to toxoplasmosis), evaluating vaccination and immunity status, and managing medical conditions such as diabetes, hypertension and cardiovascular disease also may be delayed.

Feelings About Being Pregnant

Sixty percent** of the respondents of the survey said they had planned their pregnancies; that is, they wanted to be pregnant now or would have liked to be pregnant sooner. Respondents who reported that they received Medicaid support or WIC support were less likely to report that their pregnancies were planned (29% and 36% respectively).

*Unintended pregnancy is a pregnancy that was not wanted at the time conception occurred, despite whether or not contraception was being used. Included in this definition are two distinctions: mistimed conceptions, which are those that were wanted by the woman at some time, but which occurred sooner than wanted; and unwanted conceptions, which are those that occurred when the woman did not want to have any more pregnancies at all.

**In determining this overall rate of intendedness or planning of pregnancy, responses of women who checked the "other" category were evaluated and reassigned based on content.

Feelings About Being Pregnant

Feelings	Medicaid	WIC	Non-WIC	Total
I wanted to be pregnant sooner	4%	9%	18%	15%
I wanted to be pregnant later	22%	20%	12%	15%
I wanted to be pregnant then	25%	27%	50%	41%
I didn't want to be pregnant then or any time in the future	8%	5%	3%	4%
I was unsure how I felt about being pregnant	27%	25%	11%	16%
Other	14%	14%	8%	10%

Characteristics of Unintended Pregnancies

Fifty-eight percent of the women who identified their pregnancies as unintended were using no form of birth control. The probability of unintended pregnancy decreases as women grow older. Compared with women who planned their pregnancies, women who identified their pregnancies as unintended were:

- Slightly less likely to begin prenatal care in the first trimester (84% to 90%).
- Twice as likely to smoke while pregnant (22% to 10%).
- Slightly more likely to use alcohol during pregnancy (2% to 1%).
- Significantly more likely not to take a multivitamin (56% to 36%).

Intendedness of Pregnancy by Selected Variables

	Late Prenatal Care	Alcohol Use	Tobacco Use
Intended	7%	<1%	10%
Unintended	17%	2%	22%

Differences exist between Native American and white women concerning whether their pregnancies were intended or not:

- Fifty-nine percent of white women surveyed indicated that their pregnancies were intended.
- Thirty-five percent of Native American women stated their pregnancies were intended.
- Almost twice as many Native American women as white women indicated that they were unsure how they felt about their pregnancies at the time of conception (17% to 9%).

Intendedness of Pregnancy by Age of Mother

	15-19	20-24	25-29	30-34	35-39	40+
Intended	18%	61%	81%	85%	84%	93%
Unintended	82%	39%	19%	15%	16%	7%

Intendedness of Pregnancy by Program Participation and Gravid Status

	WIC Primiparas	Non-WIC Primiparas	WIC Multiparas	Non-WIC Multiparas
Intended	29%	67%	44%	68%
Unintended	71%	33%	56%	32%

Current Use of Family Planning Services

When queried about the facility they visit for their birth control or family planning services, 37 percent of the women indicated a private physician or clinic. Sixteen percent of the women indicated the Family Planning Program, community health center, family practice center, Indian Health Service or military health system; the range was from greatest proportion indicating Family Planning Program (7%) to the lowest proportion indicating family practice centers (2%). Slightly more than 15 percent of the women surveyed indicated that they were using an over-the-counter form of birth control (condoms, foam, etc.).

Use of Over-the-Counter Birth Control By Age

15-19	6%
20-24	19%
25-29	38%
30-34	28%
35-39	8%
40+	1%
Total	100%

About 150 women reported they were not using some type of birth control at the time of the survey, when their infants were about 3 to 4 months old. Women participating in the WIC Program (21%) or receiving Medicaid (22%) were less likely than the overall population (16%) to be using some method of birth control at the time of the survey.

Reasons for Currently Not Using Birth Control

Reason	Total
Don't plan to have sex	21%
Birth control side effects	15%
I'm breastfeeding and told not to use birth control	18%
Want to be pregnant soon	10%
Can't afford birth control	5%
Partner doesn't want me to use	3%
Other	28%

Unintended pregnancy may lead to abortion, which can be an emotionally difficult experience for a woman and others close to her, posing difficult moral and ethical problems. With an unwanted pregnancy especially, the mother is more likely to seek prenatal care after the first trimester or not to obtain care. She is more likely to expose the fetus to harmful substances by smoking tobacco and drinking alcohol. She is more at risk of neural tube defects such as spina bifida if not taking folic acid before conception. Complications from certain serious diseases and conditions such as diabetes or hypertension may affect the woman and her child. The child is at greater risk for abuse or neglect or not receiving the resources necessary for healthy development. Both mother and father may suffer economic hardship and fail to achieve their educational and career goals.

Access to Prenatal Care

Distance Traveled for Prenatal Care

The survey asked: "How many miles did you travel (one way) to your prenatal visits?" Seventy percent of the women traveled 15 miles or less. There were no differences between WIC clients and non-WIC clients. However, more multiparas lived between 16 and 60 miles from their health care provider. Eight percent of all respondents traveled more than 60 miles to access prenatal care.

Insurance Coverage for Prenatal and Delivery Costs

Only 4 percent of respondents had no insurance or inadequate insurance for maternity services. Inadequate insurance was defined as insurance that does not cover maternity care. Although only 35 percent of WIC respondents were covered by private insurance or a managed care program, more had their care paid for by Medicaid (44%) or Indian Health Services (9%).

Prenatal Care Payers

Payer	Primiparas	Multiparas	WIC	Non-WIC	Total
Private insurance	66%	65%	34%	84%	65%
Managed care	2%	3%	1%	4%	2%
Medicaid	20%	17%	44%	3%	18%
Indian Health Service	3%	2%	5%	<1%	2%
Military	4%	7%	9%	4%	6%
Inadequate insurance	3%	2%	2%	2%	2%
No insurance	2%	3%	3%	2%	2%
Other	<1%	2%	1%	1%	1%

Trimester Prenatal Care Initiated

Respondents to the New Mothers' Survey were somewhat more likely than the general prenatal population to receive prenatal care in the first trimester–88 percent of respondents compared to 86 percent of all mothers who gave birth in 1999.

The Healthy People 2010 goal is for 90 percent of pregnant women to begin care in the first trimester of pregnancy.

Trimester Prenatal Care Began

	Primiparas	Multiparas	WIC	Non-WIC	Total
First	89%	88%	85%	90%	88%
Second	9%	10%	12%	8%	10%
Third	2%	2%	3%	1%	1%

Reasons for Not Getting Early Prenatal Care

The survey asked: "Did any of these things keep you from getting health care as early as you wanted in your pregnancy?" (Please note that the survey question does not ask if this reason kept them from getting care in the first trimester of pregnancy.) Sixty-nine percent of respondents said they had no problems getting prenatal care and obtained it when they wanted it. However, more than 30 percent said they didn't get care as early as they wanted it. The most frequent reason for not getting care as early as they wanted was "I didn't know I was pregnant." Of these 111 women (10% of respondents), 75 (68%) received care in the first trimester. In another instance, 65 women said that their doctor/clinic wouldn't give them an earlier appointment. However, 95 percent of these women started prenatal care in their first trimester. Many women seem to want care earlier in their first trimester.

There were 128 respondents who did not start prenatal care in the first trimester. It is interesting to note that 44 percent of these women said they didn't have any problems getting care; they received it when they wanted it.

Reason Women Didn't Get Care in First Trimester

(more than one answer could be given)

Got care when they wanted it	44%
Didn't know they were pregnant	28%
No insurance/insurance didn't pay	17%
Didn't want pregnancy known	14%
Had been pregnant before	12%
Too many things going on	8%
Other	10%
Hard to get to doctors office	6%
Couldn't get on Medicaid	2%
Couldn't get doctor appointment	2%

Satisfaction With Prenatal Visits

Eighty-eight percent of the respondents were very or somewhat satisfied with their prenatal care visits. WIC clients were less satisfied with their visits than the non-WIC clients were. However, as is noted in another section, WIC respondents are more likely to rate their physician as the most useful source of prenatal information compared to non-WIC respondents.

Satisfaction With Prenatal Visits

	Primiparas	Multiparas	WIC	Non-WIC	Total
Very satisfied	76%	77%	69%	81%	76%
Somewhat satisfied	13%	12%	12%	12%	12%
OK	7%	7%	12%	4%	7%
Somewhat dissatisfied	4%	3%	6%	2%	3%
Very dissatisfied	<1%	<1%	<1%	<1%	<1%

Improvements in Prenatal Care Visits

Survey respondents were asked what one thing they would change in their prenatal care. The majority was satisfied and wouldn't change anything. Less time waiting and more time with the doctor or nurse were the highest rated suggestions for change.

Changes Wanted in Prenatal Care Visits

Change	Primiparas	Multiparas	WIC	Non-WIC	Total
Nothing was wrong, had great care	50%	55%	48%	57%	53%
Less time waiting	14%	14%	14%	14%	14%
More time with doctor/nurse	10%	9%	10%	9%	9%
See same doctor/ nurse at all visits	6%	6%	9%	4%	6%
Long distance from clinic	6%	5%	7%	5%	6%
Convenient office hours	4%	3%	3%	4%	4%
Other	9%	5%	7%	6%	5%

Participation in Other Programs

Although only 39 percent of all respondents attended Lamaze classes, this represents 72 percent of non-WIC primiparas and 49 percent of WIC primiparas. Sixty-four percent of respondents who attended prenatal classes also attended Lamaze classes. Lamaze is a key channel for reaching first time-mothers with important prenatal information. However, fewer low-income women attend Lamaze classes. Only 24 percent of first-time mothers who were on Medicaid attended Lamaze classes. This may be due to the cost of the classes. Another reason may be the non-traditional work schedules of many lower-income women. They often work evenings or weekends, the times Lamaze classes are often scheduled. Although the Optimal Pregnancy Outcome Program (OPOP) provides (at no cost) valuable information about pregnancy and delivery, only 12 percent of medical assistance respondents participated in OPOP.

Program Participation

Program	Non-WIC Primiparas	Non-WIC Multiparas	WIC Primiparas	WIC Multiparas	Total
Lamaze classes	72%	24%	49%	16%	39%
WIC	0%	0%	100%	100%	37%
Prenatal classes	37%	8%	29%	16%	21%
Breastfeeding classes	26%	6%	22%	13%	15%

Access to Prenatal Education

Most Useful Source of Prenatal Education

The survey asked the women to identify the most useful source of education about how to take care of themselves during pregnancy. First-time mothers reported that the "most useful sources of prenatal education were books, magazines and other information that I found for myself," followed by their physicians and the educational materials provided by their clinic. In the WIC population, the doctor was listed more often as the most useful source. Also, in the WIC population, family and friends and public health/WIC ranked high as sources of education.

For women who had previous pregnancies, the most useful source was their previous experience. This was followed by "their own study," their doctor and the clinic education packet.

The Most Useful Source of Pregnancy Education: Primiparas

Source	Non-WIC Primiparas	WIC Primiparas
Books, magazines	31%	23%
My doctor	19%	25%
Clinic educ. packet	17%	5%
Family & friends	12%	16%
Lamaze classes	8%	7%
Public health/WIC	0%	14%
Other	13%	10%

The Most Useful Source of Pregnancy Education: Multiparas

Program	Non-WIC Multiparas	WIC Multiparas
Previous pregnancy	36%	48%
Books, magazines	18%	11%
My doctor	18%	17%
Clinic educ. packet	10%	6%
Family & friends	6%	5%
Lamaze classes	1%	1%
Other	11%	12%

Education from Health Care Providers

Respondents were asked if they remembered discussing various pregnancy-related behaviors with their health care providers. While most women remember discussing smoking, alcohol, a family history of birth defects and the use of medicines in pregnancy, less than one-half remember being asked about drug abuse, avoiding paints/chemicals, thorough cooking of meats and avoiding fish contaminated with mercury. These substance are known as teratogens, a term meaning harmful substances such as drugs, chemicals or pollutants that potentially can harm the developing fetus. These include cigarette smoke; alcohol; prescribed or over-the-counter medications; vaccinations, diseases or infections before or during pregnancy; drugs; chemicals such as inhalants, pesticides, paints and varnishes; physical agents such as excessive heat or radiation; or pollutants.

Health Care Provider Discussions

Topic	Primiparas	Multiparas	WIC	Non-WIC	Total
Asked about smoking	97%	94%	98%	94%	96%
Asked about alcohol intake	86%	82%	87%	82%	84%
History of birth defects	87%	78%	80%	84%	82%
Medicines in pregnancy	87%	77%	79%	83%	81%
Drug abuse	57%	42%	56%	45%	49%
Avoiding paints/chemicals	51%	33%	44%	38%	41%
Thorough cooking of meats	35%	23%	34%	25%	28%
Fish from polluted waters	9%	7%	11%	6%	8%

The North Dakota Teratogen Project

For more information about specific toxic or harmful exposures during pregnancy, contact the North Dakota Teratogen Project at the University of North Dakota School of Medicine. This program provides health care providers with a central, up-to-date source about information on harmful substances. For easy access, call 1.701.777.4277.

Genetic Disorders

A birth defect is any abnormality present at birth. Some birth defects are inherited and some may be caused by infections or by exposure to certain substances. A genetic disorder is a disease or defect that is inherited. Genetic disorders are not always noticeable at birth, but appear later in life. Eighty-two percent of the women surveyed remembered being asked about a history of birth defects or genetic disease in their families.

Genetic/Birth Defects Counseling

Genetics/birth defects counseling is a medical service helping families understand a family member's disorder. This service is offered through the University of North Dakota School of Medicine, Division of Medical Genetics. Most insurance policies cover genetic/birth defects counseling, and families without insurance may utilize a sliding fee schedule. No one is denied service for financial reasons. Clinics are offered throughout the state. To receive genetic/birth defects services, either ask your doctor for a referral or call 701.777.4277 directly.

Who Would Benefit From Genetic/Birth Defects Counseling?

Individuals:

- Who are pregnant or considering pregnancy; women who are age 35 or older.
- Who have birth defects, suspected genetic disorders, mental retardation or developmental disabilities.
- Who are concerned about their exposure to drugs, chemicals, infections or X-rays during pregnancy.
- Whose family members have mental retardation, developmental delays and/or birth defects.

Couples:

- Who are having difficulty conceiving.
- Who have a history of two or more miscarriages, stillbirths or neonatal deaths.
- Who are related to one another (common ancestor).
- Who are concerned about a genetic problem they have or might have.

Families:

- Who have a newborn suspected of having a genetic disorder or birth defect.
- Who have one or more family members affected by mental retardation, developmental delays and/or birth defects.

HIV/AIDS Testing

Every pregnant woman should be offered an HIV test as part of her normal prenatal care. North Dakota law requires physicians to obtain informed consent prior to testing for HIV/AIDS. More than 60 percent of the respondents remembered being asked if they wanted an HIV/AIDS test, up from 30 percent in the 1996 survey.

HIV/AIDS Facts

- Many women do not know that they have been exposed to HIV because they don't think they have put themselves at risk. A woman is at risk for HIV if she had unprotected sex–even one time–with someone who may be infected, or if she has shared needles or syringes with an infected person.
- In North Dakota since 1984, three children have been reported to have perinatally acquired HIV (i.e., HIV was transmitted from an infected mother to her fetus or infant before, during or after birth).
- Twenty-five percent of babies born to HIV-infected women will be infected with HIV.
- Zidovudine (AZT) therapy for HIV-infected pregnant women can reduce the proportion of infected babies by two-thirds (i.e., from 25% to 8%).
- According to Public Health Service Guidelines, it is now the standard of care for health care providers to counsel all pregnant women about the ways they could be infected with HIV and the importance of being tested for HIV.

Reducing HIV Transmission: The Maternal HIV Consumer Information Project.

The Health Care Financing Administration* (HCFA) has developed the Maternal HIV Consumer Information Project (CIP) to increase patient and provider knowledge about the availability of drugs that reduce HIV transmission and to expand knowledge of Medicaid eligibility and coverage of prenatal care. In this project, HCFA works with state Medicaid agencies and departments of health to provide women of childbearing age with information about HIV testing and counseling, which, in the event a woman is HIV positive, enables her to make an informed decision about preventing transmission of HIV disease to her baby. The project also stresses that Medicaid pays for HIV counseling, testing, treatment and medications to prevent perinatal transmission. Health care providers are encouraged to contact the North Dakota Department of Health HIV/AIDS Program at 1.800.472.2180 or 701.328.2378 to obtain free CIP patient education materials for distribution to all women of childbearing age.

*HCFA is the former name of the federal agency within the U.S. Department of Health and Human Services created to administer the Medicare and Medicaid programs. The new agency name is Centers for Medicare & Medicaid Services (CMS).

Access to Prenatal Oral Health Care

> Oral health is essential to the general health and well being of all Americans . . .
> – Oral Health in America: A Report of the Surgeon General

Pregnancy is a time when there is a special need for good oral health care because hormonal changes may exaggerate some dental disorders. Regular preventive care is as important during pregnancy as throughout one's lifetime to ward off potential problems.

Dental Visits During Pregnancy

Less than one-half (45%) of the women responding indicated they had visited the dentist "for an examination and/or treatment" during pregnancy. The remaining 55 percent said they had not been to the dentist during this time. Access declined even further among various subgroups, with women living in frontier counties (39%), WIC mothers (38%), Medicaid mothers (30%) and American Indian mothers (23%) visiting less often than women who have higher incomes and who live in more populated areas of the state.

Visits to Dentist During Pregnancy

Visited dentist	45%
Did not visit dentist	55%

Risk Factors for Not Visiting the Dentist

Education, income, race, age and method of payment for prenatal care were significant factors impacting dental visits during pregnancy.

- Women who were younger than 30 were less likely to visit the dentist (40%) than were women who were older than 30.
- Women who had incomes less than $40,000 were less likely to visit the dentist than were women whose annual incomes were greater than $40,000.
- As the level of education increased, so did the proportion of women who had visited the dentist. Women who had completed college were most likely to have visited the dentist.
- A greater proportion of white mothers than Native American mothers visited the dentist during pregnancy.
- Women who participated in WIC were less likely to have visited the dentist than were non-WIC mothers.
- Women whose prenatal care was paid for by Medicaid or Indian Health Service (IHS) and women who did not have insurance coverage or whose insurance did not cover dental care were less likely to have visited the dentist than women whose prenatal care was covered by insurance, HMOs or the military.

Reasons for Not Visiting the Dentist

Respondents who had not visited the dentist during their pregnancy (n = 616) were presented with a list of reasons why they had not visited. The most common reason chosen was "I was not having any problems" (40%). The second-most frequent response for not going to the dentist during pregnancy was "other" (19%). The three main reasons written in by the women for the "other" category were (1) had just visited the dentist before becoming pregnant, (2) did not think they should go to the dentist while pregnant because of the X-rays or anesthetic, and (3) having nausea, morning sickness, and other complications of pregnancy. The third and fourth most-cited reasons for not visiting the dentist were "I did not have enough money or insurance to pay for my visits" (14%) and "I didn't think about going to the dentist" (10%).

Reasons for Not Visiting the Dentist

Reason	Medicaid	WIC	Non-WIC	Total
Not having problems	29%	34%	45%	40%
Other	17%	14%	22%	19%
No money or insurance	15%	18%	11%	14%
Didn't think about going	11%	11%	9%	10%
Don't have a dentist	10%	11%	7%	8%
Apprehensive, nervous	8%	5%	4%	4%
Don't go to a dentist	3%	3%	2%	3%
Wouldn't take as patient	7%	4%	<1%	2%
No transportation	1%	<1%	0%	<1%

Only 28 percent of the respondents reported that a doctor, nurse or other health care provider talked to them about the importance of dental care during pregnancy. A greater percentage of WIC mothers (33%) and mothers on Medicaid (32%) reported receiving education about dental care during pregnancy, which is significantly higher than the rest of the survey respondents.

With less than one-half of the entire survey population visiting the dentist during pregnancy, there appears to be a lack of knowledge or understanding about the need for this particular aspect of prenatal care. Additionally, there appears to be little education by health care providers about the importance of dental care during pregnancy Routine dental care should be recommended early in pregnancy. Recent studies have pointed to a possible link between periodontal (gum) infection and the premature delivery of low birth weight babies.

Pregnant women need more dental care, not less. Inadequate oral hygiene practices that may not have immediate consequences for a woman who is not pregnant may be a problem for a pregnant woman. Hormonal and vascular changes during pregnancy may exaggerate the response of the gingival to bacterial plaque and can cause tender, swollen red gums that bleed easily (gingivitis). When untreated, the severity tends to increase during pregnancy. Gingival disease can be minimized or prevented when the woman is motivated to practice good oral hygiene by regular brushing and flossing.

Nausea during pregnancy may lead to poor oral hygiene, and dental caries may develop. There is no scientific evidence that filling teeth or dental extraction with the use of local anesthesia causes abortion or premature labor. Extensive dental surgery is usually postponed until after delivery, if possible.

If a pregnant woman needs extensive dental work, the second trimester is the safest time. A fetus is more susceptible to environmental influences during the first trimester; the woman, more at risk for premature delivery during the third trimester.

Pregnancy-Related Behaviors

Tobacco Use

> Cigarette smoking is the major single and preventable cause of disease and premature death in the United States.
> – Alcohol, Tobacco, and Other Drugs May Harm the Unborn - DHHS Publication No. (ADM) 90-1711, 1990 reprinted 1994.

Teratogens are any environmental agents such as drugs, chemicals or pollutants that potentially can harm the developing fetus. By far, tobacco is the teratogen affecting the most pregnancies in North Dakota. Twenty-seven percent of the survey population smoked prior to pregnancy. This is an increase of 5 percent since the 1996 survey. Twenty-eight percent of primiparas and 25 percent of multiparas were smokers. Significantly more women who participated in the WIC Program smoked compared to non-WIC mothers. Rates for both WIC and non-WIC survey respondents were higher on this survey than the 1996 survey. Since survey methodology and response rates were different between the two surveys, results may not be comparable. The 1999 North Dakota rate of smoking for adult females in the general population was 21 percent, the same as the national rate. (North Dakota 1999 Behavior Risk Factor Survey).

Pre-Pregnancy Smoking Rates

	WIC	Non-WIC	Total
1999 pre-pregnancy smokers	45%	16%	27%
1996 pre-pregnancy smokers	38%	13%	22%

Advice From Health Professionals

Until more tobacco use prevention efforts are initiated in our society, health care providers still have to address the issue of tobacco use during pregnancy. Women who smoke are more receptive to the no-smoking message during pregnancy than at any other time. Many will stop smoking during pregnancy and most will decrease their smoking levels to protect their infants.

During pregnancy the most important step in addressing tobacco use and dependence is screening for tobacco use. Ninety-six percent of all respondents remember being asked by their physician or nurse if they smoked. Ninety-seven percent of the smokers remember being asked. However, less than three-fourths of smokers remembered being told of the harm smoking does to the fetus during pregnancy, and only 53 percent actually were told to quit.

Health Care Provider Discussion With Smokers

Asked about smoking behavior	97%
Discussed harm to fetus	73%
Told to quit	53%
Told to cut down	20%
Given other advice	23%
Given no advice	4%

Smoking Cessation

If women stop smoking prior to or during their pregnancies rather than just decrease their smoking, the chances they will not smoke during the first few months of their infants' lives are significantly increased. Fifty-five percent of the smokers (n=286) in this survey who quit during pregnancy were still not smoking at the time of the survey (three to four months postpartum).

Smoking Behaviors

	WIC	Non-WIC	Total
Pre-pregnancy smokers	45%	16%	27%
Stopped smoking during pregnancy	45%	47%	46%
Tried to stop but failed	11%	18%	14%
Decreased	44%	35%	40%
Smoking at four months postpartum	34%	12%	20%

The majority of previous smokers were women who smoked a lower number of cigarettes before they became pregnant. Women who smoked five or fewer cigarettes a day had a 57 percent quit rate, compared to a 17 percent quit rate for those who smoked six or more cigarettes a day. For those who are heavier smokers, an intensive smoking cessation intervention is needed.

Secondhand Smoke Exposure During Pregnancy

Knowledge of the dangers of secondhand smoke for pregnant women and infants has been growing. Forty-two percent of women remember their health care provider discussing the danger of secondhand smoke to the fetus during pregnancy.

This survey showed that more primiparas (50%) received advice about the dangers of secondhand smoke during pregnancy than did the multiparas (36%). Similar rates were found when women were asked if their health care providers had discussed the harmful effects of smoking around a baby after birth. Fifty-three percent of primiparas remembered discussing it, compared to 39 percent multiparas.

Twenty-five percent of the respondents (n=263) actually lived with someone who smoked. As would be expected, more smokers reported having another smoker in the household (52%) compared to non-smokers (12 %). Of the women who reported living with a smoker, only about one-half (52%) remembered being told that secondhand smoke is harmful to the fetus during pregnancy. More women (67%) remembered being told that it is harmful to have smoke in a baby's environment once the baby is born.

Smoking Interventions Model

The "5 A's" - For Those Willing To Quit*

Ask – Implement an office-wide system that ensures that for EVERY patient at EVERY clinic visit, tobacco-use status is queried and documented.

Advise – In a clear, strong and personalized manner, urge every tobacco user to quit. Provided information about the benefits of quitting and the impact of continued smoking on the woman, fetus and newborn.

Assess Ask every tobacco user if she is willing to make a quit attempt within the next 30 days.

Assist – Help the patient with a quit plan. Provide pregnancy-specific, self-help smoking cessation materials.

Arrange – Schedule regular follow-up visits to track the progress of the patient's attempt to quit smoking.

The "5 R's" – For Those Unwilling To Quit At This Time*

Relevance – Encourage the patient to indicate why quitting is personally relevant (personal barriers to cessation, health of unborn child).

Risks – Ask the patient to identify potential negative consequences of tobacco use.

Rewards – Ask the patient to identify potential benefits of stopping tobacco use.

Roadblocks – Ask the patient to identify barriers or impediments to quitting, and note elements of treatment that could address barriers.

Repetition – Repeat a motivational intervention every time an unmotivated patient visits the clinic setting.

Preventing Relapse in Former Smokers*

- At every visit, congratulate the former smoker and offer strong encouragement to remain abstinent.
- With recent quitters, use open-ended questions to encourage an active discussion of the benefits of not smoking, successes in quitting, and problems encountered or anticipated.
- For those with specific problems, schedule follow-up visits or telephone calls; help the patient identify sources of support within her environment, and refer her to an appropriate organization that offers cessation counseling or support.

*Reference: Fiore MC, Baily WC, Cohen SJ, et. al. Treating Tobacco Use and Dependence. Quick Reference Guide for Clinicians. Rockville, MD: U.U. Department of Health and Human Services. Public Health Service. October 2000.

Alcohol Use

The universal message that women should abstain from drinking alcohol prior to conception and throughout pregnancy should be emphasized and expanded to 'no drinking if there is any chance you could become pregnant.' Binge drinking of more than five drinks on any occasion is one of the strongest maternal predictors of later neurobehavioral deficits among offspring.
– Alcohol, Tobacco, and other Drugs May Harm the Unborn - DHHS Publication No. (ADM) 90-1711, 1990 reprinted 1994.

Alcohol Use Prior to Pregnancy

Fifty-one percent of the respondents to the New Mothers' Survey (NMS) reported that they did not drink alcohol at all in the three months prior to pregnancy. Another 36 percent reported drinking on less than one day a week. Thirteen percent (n=138) reported drinking on one or more days a week.

Women in their first pregnancy were more likely to report drinking in the three months prior to pregnancy than women who had had a previous pregnancy. WIC participants were more likely to report no alcohol intake prior to pregnancy than non-WIC respondents were.

Drinking in the Three Months Before Pregnancy

Drinking Days /week	Primiparas	Multiparas	WIC	Non-WIC	Total
1-7 days	16%	10%	14%	12%	13% (n=138)
<1 day	38%	34%	28%	40%	36% (n=376)
0 days	46%	55%	57%	48%	51% (n=541)

Ten percent of the survey population did not seek early prenatal care because they did not know they were pregnant. Of these 109 women, 55 percent consumed alcohol at some time during the three months prior to pregnancy (31% drank one to seven days/week and 34% drank less than one day/week).

Acute or binge drinking is defined as having five or more drinks on an occasion, one or more times in the past month. Although a smaller percentage (42%) of the WIC population reported drinking alcohol in the three months prior to pregnancy compared to the non-WIC population (52%), 10 percent of the WIC population reported binge drinking compared to 4 percent of the non-WIC population. In 1999, 3 percent of females in the general population reported acute or binge drinking as determined by the North Dakota Behavioral Risk Factor Survey (BRFSS) telephone survey of adults.

Binge Drinking Behaviors Prior to Pregnancy

Amount	Primiparas	Multiparas	WIC	Non-WIC	Total
<5 drinks/day	47%	39%	32%	48%	42%
≥5 drinks/day	7%	6%	10%	4%	6%
0 drinks /day	46%	55%	57%	48%	51%

Advice From Health Care Professionals

Although 96 percent of women remembered being asked if they smoked, only 84 percent remembered being asked by a health care worker about drinking alcohol and 28 percent reported receiving no advice about alcohol. In the 1996 survey, 88 percent remembered being asked if they drank and 24 percent reported receiving no advice about alcohol. The non-WIC population and second-time mothers were less likely to be given information about avoiding alcohol in pregnancy.

Of the women who actually reported some level of drinking in the three months before pregnancy, 62 percent were told not to have any alcohol during pregnancy, 9 percent were told they could have alcohol occasionally, and 4 percent were told they could have one drink a day. Twenty-five percent of these respondents reported being told nothing about avoiding alcohol during pregnancy.

Prenatal Visit Discussion

Topic	Primiparas	Multiparas	WIC	non-WIC	Total
Asked about alcohol intake	86%	82%	87%	82%	84%
Talked about harm to baby	62%	41%	57%	47%	50%
Advised no alcohol	71%	60%	69%	62%	65%
Advised occasional use	6%	5%	4%	6%	5%
Advised one drink a day	1%	2%	2%	1%	2%
No advice given	22%	34%	25%	30%	28%

Alcohol Use During Pregnancy

When asked about binge or acute drinking in the last three months of their pregnancy, 99 percent of all women reported zero binge drinking.

Drinking Behavior in Last Three Months of Pregnancy

Intake	Primiparas	Multiparas	WIC	non-WIC	Total
Did not drink	98%	95%	98%	95%	96%
< 1 drink/week	2%	4%	2%	4%	3%
1-3 drinks/week	0%	1%	<1%	1%	<1%

Do not drink during pregnancy.

Prevention of Fetal Alcohol Syndrome

Fetal alcohol syndrome (FAS) is a term coined nearly 30 years ago to describe a pattern of birth defects found in children of mothers who consumed alcohol during pregnancy. FAS is defined by four characteristics: maternal drinking during pregnancy, a characteristic pattern of facial abnormalities, growth retardation and brain damage. When the signs of brain damage appear following fetal alcohol exposure but the other indicators of FAS are not present, the condition is termed "alcohol-related neurodevelopmental disorder" (ARND) – formerly known as "fetal alcohol effect" (FAE). Today FAS remains the leading known preventable cause of mental retardation.

Dr. Larry Burd, director of the North Dakota Fetal Alcohol Syndrome Center, estimates that there are between 1.5 and 2.5 cases of FAS per 1,000 live births in North Dakota each year, with eight cases of ARND per 1,000 live births. Dr. Burd states that the number of new cases of FAS appears to have been unchanged for several years. If women who have had a child with FAS continue to drink, they have more than a 75 percent chance of having another child with FAS. Some prevention efforts must focus on this very high-risk group in order to be effective in preventing FAS in North Dakota.

In FAS prevention, as with tobacco control, the first step for health care providers is to ask about a woman's alcohol intake. Studies have generated tested questions that will help the health care provider identify women at risk of alcohol abuse who require further assessment. Dr. Burd has developed an assessment tool for use with pregnant women, which is also available online for women to assess their own alcohol exposure: http://www.online-clinic.com/Maternal_Risk.html.

Assessment Tools Available at Online Clinic:
http://www.online-clinic.com

Calculate Maternal Risk Score
Prenatal Risk Assessment Questionnaire
Calculate Prior-to-Pregnancy Risk Score
Prior-to-Pregnancy Questionnaire
Assessment of Alcohol Exposure
Assessment of Smoking Exposure

Nutrition, Vitamin Use, Food Safety and Physical Activity

Vitamin Use Prior to Pregnancy

Folic acid (folate/folacin) is a water-soluble vitamin which, when taken daily prior to conception and in the early weeks of pregnancy, has been shown to help prevent serious birth defects of the brain and spine (known as neural tube defects). Several recent studies have shown that folic acid taken before conception and in the first months of pregnancy also may reduce the incidence of cleft lip/palate, as well as some heart and limb defects.

Even though the United States has increased the level of folic acid fortification in grain products, women of childbearing age still should take a daily vitamin supplement that contains 400 mg/day of folic acid. An increasing number of breakfast cereals are fortified with folic acid. Women who choose a serving of one of these cereals get the same level of folic acid as that provided by a multivitamin supplement.

The Healthy People 2010 goal is to have 80 percent of the childbearing population consuming a folic acid supplement every day of the week.

More women reported taking a vitamin supplement every day in the 1999 survey (38%) compared to the 1996 survey (30%). Women participating in the WIC Program were less likely to take multivitamin supplements during the three months prior to pregnancy.

Vitamin Use During the Three Months Prior to Pregnancy

Frequency	WIC	Non-WIC	1999 Total	1996 Total
Every day	27%	44%	38%	30%
4-6 days/wk	7%	6%	7%	8%
<3 days/wk	10%	11%	11%	10%
None	56%	38%	44%	53%

The North Dakota Department of Health conducts an annual telephone survey of adults, which is part of the Centers for Disease Control and Prevention's Behavioral Risk Factor Survey System (BRFSS). In 1999, a series of questions regarding folic acid were asked of North Dakota residents. The results showed that 53 percent of the childbearing population (women ages 18 to 44) were taking either a multivitamin or other supplement that contained folic acid

Discussion of Importance of Vitamin Supplements

In the 1999 New Mothers' Survey, women were asked if a doctor, nurse or other health professional had talked to them either during the pregnancy or right after the baby's birth about the importance of folic acid in food or vitamin supplements to prevent birth defects. Only 36 percent of the respondents remembered discussing the subject. More primiparas (38%) than multiparas (30%) had been told about folic acid. Since most primiparas will have another child, all of them should have been encouraged to take a folic acid supplement between pregnancies. Significantly fewer women remembered hearing about folic acid in 1999. Even considering the difference in survey design in 1996 and 1999, the decline is probably real.

Remembered Discussing Importance of Folic Acid To Prevent Birth Defects

	1996	1999
Total	55%	34%
WIC primiparas	64%	34%
WIC multiparas	55%	30%
Non-WIC primiparas	57%	41%
Non-WIC multiparas	50%	30%
Medicaid participants	55%	35%

In the North Dakota BRFSS Survey, people were asked if they knew why folic acid should be taken. Only one-third of the adults knew that folic acid was recommended to prevent birth defects. The North Dakota March of Dimes is spearheading a folic acid campaign to improve knowledge about folic acid and to increase folic acid intakes in the childbearing population. The March of Dimes formed a statewide folic acid taskforce that is coordinating a variety of activities, including implementing a media campaign, awarding folic acid project grants, and distributing educational materials.

Vitamin Use During Early Pregnancy

The 1999 New Mothers' Survey asked how often women took a multivitamin supplement (either regular or prenatal) during the first half of their pregnancy. Thirty-seven percent reported that they had started taking a supplement before they became pregnant and continued taking it almost every day while pregnant. Another 16 percent started taking a regular supplement in the first month of pregnancy, 24 percent started in the second month, and 9 percent started in the third month. Twenty-two percent either didn't take a supplement or started taking one after the first trimester of pregnancy.

Twenty percent of the respondents (n=213) gave reasons for not taking vitamins or not taking them frequently. More than one-half (54%) said it was due to side effects. Twenty-six percent said they couldn't remember to take them. Six percent said that they ate nutritious meals or highly fortified cereals, so they didn't need a vitamin, and 1 percent reported that their doctors didn't prescribe vitamins. Only two respondents (WIC participants) said they couldn't afford them.

Vitamin Use During Pregnancy

Vitamin Intake	Primiparas	Multiparas	WIC	Non-WIC	Total
Started before preg.	37%	38%	26%	44%	37%
Took 3-7 times a week	51%	46%	58%	43%	48%
Took <3 times a week	6%	8%	7%	7%	7%
Did not take vitamins	6%	8%	9%	6%	7%

Pre-Pregnancy Weight Status

More than one-half of the survey respondents entered pregnancy at a normal weight for their height. Multiparas and WIC clients were more likely to be overweight. Thirty-five percent of multiparas were overweight or very overweight. Thirty-eight percent of WIC clients entered pregnancy overweight or very overweight.

Pre-Pregnancy Weight Status*

	Primiparas	Multiparas	WIC	Non-WIC	Total
Underweight BMI** <19.8	14%	11%	14%	11%	12%
Normal BMI 19.8-26.0	56%	54%	48%	59%	55%
Overweight BMI 26.1-29.0	12%	13%	11%	13%	12%
Very overweight >29.0	18%	22%	27%	17%	20%

* Based on the Institute of Medicine's Body Mass Index Categories

** BMI = Body Mass Index

Infant Birth Weight

Women who start pregnancy underweight have a greater chance of giving birth to an underweight baby. About 35 percent of all respondents had ideal weight gain (according to the Institute of Medicine's* recommendations based on a woman's pre-pregnancy weight).

A literature review and studies by Dr. Judith Brown from the University of Minnesota School of Public Health indicate that the healthiest or "optimal" infant birth weight is between 7.5 and 9.5 pounds (about 3,500-4,500 grams). The Fetal Origins of Obesity hypothesis points to adverse fetal adaptations when exposed to poor nutrition, which may lead to a variety of chronic diseases in adulthood. Undernutrition and overnutrition can affect the number and type of cells, insulin and glucose use, endocrine changes and redistribution of blood flow. Infants born too small or too large are at greater risk of becoming obese and of developing a variety of chronic diseases. Only 40 percent of respondents had babies that were in the "optimal range," which is very similar to the birth weight rates for all 1999 births.

Birth Weights

Birth Weights	Primiparas	Multiparas	WIC	Non-WIC	Total
<3500 g	66%	53%	62%	57%	59%
3500-4500 g	33%	45%	36%	42%	40%
>4500 g	1%	2%	2%	1%	2%

Ideal Weight Gain Recommendations*
(IOM Standards)

Prepregnancy Weight Status	Ideal Weight Gain
Very underweight (BMI* <18.0)	28-40 lbs.
Underweight (BMI 18.0-19.7)	28-40 lbs.
Normal weight (BMI 19.8-26.0)	25-30 lbs.
Overweight (BMI 26.1-29.0)	15-25 lbs.
Very overweight (BMI 29.0+)	15+ lbs.

BMI) Body Mass Index: Weight in pounds ÷ height in inches ÷ height in inches x 703

The BMI for a woman who weighs 140.5 pounds and who is 5 feet 5 1/2 inches tall is 23.

BMI = 140.5# ÷ 65.5" ÷ 65.5" X 703 = 23

Woman's Pre-Pregnancy Weight Status

A woman's pre-pregnancy weight is one of the strongest predictors of her infant's birth weight. Underweight women are much more likely to give birth to a low birth weight infant. Other factors that affect fetal growth are low pregnancy weight gain, congenital infection, preeclampsia, maternal malnutrition and placental damage.

Woman's Pre-Pregnancy Weight Status and Infant's Birth Weight

Birth Weight	Underweight (BMI <19.7)	Normal (BMI 19.8-26)	Overweight (BMI 26.1-29.0)	Obese (BMI >29.0)
< 3500 g	73%	57%	54%	56%
3500 - 4500 g	25%	42%	45%	41%
>4500 g	0%	1%	2%	3%

Diet-Related Problems in Pregnancy

Almost three-fourths of the respondents remembered their health care provider talking about what a pregnant woman should eat during pregnancy. More primiparas (80%) than multiparas (65%) remember discussing what they should eat.

Fifty-three percent of respondents reported some type of diet-related problem. Except for anemia, primiparas and WIC participants reported a higher rate of all problems. Nausea was listed as the number one condition, followed by anemia. Nationally, 29 percent of low-income women are reported to have anemia, but only 17 percent of WIC survey respondents reported anemia.

High blood pressure during pregnancy is another serious complication. The development of high blood pressure in pregnancy often is related to poor nutrition and poor weight gain, not too much sodium. Pregnant women should not be counseled to restrict sodium. Rather, optimum weight gain according to individual needs should be promoted.

Diabetes, whether pre-existing or gestational, can result in increased congenital anomalies, cesarean delivery, macrosomia, and future metabolic abnormalities. Gestational diabetes was reported by 6 percent of the survey population. The North Dakota birth certificate information, which is filled out by the birthing facility/physician, reports only a 3 percent rate of pregnancies complicated by gestational diabetes. For pre-existing diabetes as a complication of pregnancy, 1 percent of the survey population reported having the condition. The birth certificate information showed a rate of .4 percent pre-existing diabetes for both 1998 and 1999, suggesting that diabetes may be underreported on birth certificates.

Diet Problems in Pregnancy

	Primiparas	Multiparas	WIC	Non-WIC	Total
Severe nausea	20%	20%	21%	18%	19%
Anemia	14%	16%	17%	13%	15%
High blood pressure	12%	8%	11%	9%	10%
Poor weight gain	12%	9%	14%	8%	10%
Gaining too much	10%	7%	9%	7%	8%
Severe vomiting	11%	6%	10%	7%	8%
Gestational diabetes	6%	5%	5%	6%	6%
Severe constipation	6%	6%	6%	6%	6%
Pre-existing diabetes	1%	1%	1%	1%	1%
No serious problems	48%	46%	41%	50%	47%

Doctors and WIC nutritionists were the most frequent source of help for diet-related problems. Forty-four percent of the WIC population and 35 percent of the non-WIC population reported that their doctor helped them with their diet-related problems. Twenty-eight percent of WIC respondents reported receiving help from their WIC nutritionist. Eight percent of all respondents received help from the clinic nurse and 7 percent from a hospital or clinic dietitian. Eight percent reported receiving no help.

Food Safety

Infections in the pregnant woman can be dangerous to her unborn child. Undercooked meats and cat litter can be sources of the parasite toxoplasma gondii, which, although not a common prenatal infection, can put the infant at risk of serious illness or death. Only 28 percent of the survey respondents remembered their health care provider talking about the importance of thoroughly cooking meat. Fifty-two percent remembered discussing if they had or took care of a cat.

Pregnant women are also at increased risk for infections caused by listeria montcytogenes, which may cause miscarriage, fetal death, severe illness or death of a newborn infant. Pregnant women should not eat hot dogs and luncheon meats unless they are reheated until steaming hot. They should not eat soft cheese such as feta, Brie, and Camembert cheeses, blue-veined cheeses, and Mexican-style cheeses such as "queso blanco fresco."

Other types of food poisoning can be caused by eating undercooked or raw foods, or cooked foods that have been cross-contaminated with bacteria from raw foods. Meningitis, pneumonia or even death of the unborn child can occur. Vomiting and diarrhea associated with food poisoning can exhaust and dehydrate the mother.

Mercury

Women who plan to become pregnant, are pregnant or are breastfeeding should limit their consumption of fish caught in North Dakota or Minnesota. All species and sizes of fish contain mercury; however, it is the larger fish of each species that contain higher levels of mercury.

Less than 10 percent of survey respondents remember discussing the issue of fish and mercury with their health care provider. A related question, about how often the woman ate fish caught by family or friends, was asked. Seventy-five percent reported not eating any fish caught by family or friends. Less than 1 percent of the total respondents ate four or more meals a month, 3 percent ate fish one to three times a month and 22 percent ate fish once a month or less. WIC respondents reported a higher rate of consuming fish four or more times a month.

Fish Consumption During Pregnancy

	WIC	Non-WIC	Total
Did not eat any fish	80%	70%	74%
4 or more times/month	2%	<1%	1%
2-3 times /month	2%	3%	3%
Once a month or less	16%	26%	22%

Pregnancy Guidelines for Consumption of Fish Caught in Local Lakes and Rivers.

- Children 5 and younger, pregnant women and nursing women can occasionally eat only smaller fish; and children over age 5 and all other adults can frequently eat smaller fish while limiting the meals of medium and larger fish."

– Fish Consumption Advisory for Waters of North Dakota. (January 2001).

- In addition, the Food and Drug Administration (FDA) recommends that certain ocean fish (shark, swordfish, king mackerel and tilefish) should not be eaten by pregnant women, nursing mothers, all women who might become pregnant and young children. FDA advises an average of no more than 12 ounces of fish in one week for these at-risk women, which would include shellfish, canned fish, smaller ocean fish or farm-raised fish. The FDA does not address specific amounts for children, but because FDA recommends no more than 12 ounces for women, parents might want to limit a child's consumption of fish to 6-12 ounces or less per week.
- For more specific fish consumption advice for North Dakota and Minnesota, visit these websites: www.health.state.nd.us/ndhd/environ/wq or www.health.state.mn.us

Physical Activity

It is recommended that women maintain moderate levels of physical activity during pregnancy. Regular, moderate exercise may result in a more comfortable pregnancy and ease labor. However, only 28 percent of respondents reported maintaining moderate levels of physical activity, the same percentage that was reported in the 1996 New Mothers' Survey.

Physical Activity Level

Activity Level*	Primiparas	Multiparas	WIC	Non-WIC	Total
Very little	20%	21%	18%	21%	20%
Sporadic	48%	51%	51%	48%	49%
Moderate	31%	26%	29%	28%	28%
Vigorous	2%	2%	2%	2%	2%

*Very little: watch TV, read.
Sporadic: walking once or twice a week, volleyball or bowling once a week.
Moderate: regular walking, swimming, etc., for about 30 minutes a day or 20 minutes of vigorous exercise at least three times a week.
Vigorous:: jog several miles a day, aerobic several times a week.

Physical Activity at Work

Of the approximately 850 women who worked during pregnancy, 55 percent reported being physically active while at work. More WIC clients (65%) reported being physically active while at work compared to non-WIC women.

Physical Demands of Job

	Primiparas	Multiparas	WIC	Non-WIC	Total
Physically active	54%	55%	65%	49%	55%
Not active	46%	45%	35%	51%	45%

Pregnancy and Stress

Life Events

Stress during pregnancy can result in premature and low birth-weight babies. Pregnancy can be a difficult time, especially for low income women. The survey asked several questions about significant events during the 12 months before delivery (illness, job loss, arrest, etc.) Sixty-six respondents reported at least one stressful event. The most common stressful events were moving to a new address, financial trouble, illness of a close family member, and death of someone close. Forty-four percent of respondents experienced one or two stressful events, 18 percent experienced three to six stressful events, and 2 percent experienced more than six. Younger women and lower income populations reported a greater number of stressful events.

Stressful Events

Events	WIC	Non-WIC	Total
Moved to a new address	47%	28%	35%
Financial trouble	38%	10%	20%
Close family member sick	22%	18%	19%
Someone close died	20%	14%	16%
Argued with partner more than usual	22%	9%	14%
Someone close with drug/drinking problem	16%	7%	10%
Husband/partner lost job	13%	3%	7%
Baby's father didn't want me to be pregnant	11%	2%	5%
Got divorced/separated	12%	2%	6%
No support partner/family in pregnancy	8%	2%	4%
Lost my job	8%	2%	4%
Involved in physical fight	6%	1%	2%
Got arrested/charged/convicted	4%	1%	2%
Was homeless	4%	1%	2%

Mental Stress of Job

In addition to the above stressful events, 17 percent of the respondents reported that their jobs were extremely stressful. Another 58 percent reported that their jobs were somewhat stressful.

Mental Stress of Job

Stress Level	WIC	Non-WIC	Total
Extremely stressful	18%	16%	17%
Somewhat stressful	54%	61%	58%
Not stressful	28%	23%	25%

Domestic Violence

In the 1999 New Mother Survey, 4 percent of the survey population answered yes to the question bout physical abuse. This falls at the lower limit of estimated rates reported in current literature. More than one-half of these women were abused by a husband or partner. Eight percent of respondents who participated in the WIC Program reported abuse, compared to 2 percent of the non-WIC respondents. Women who had already had a baby reported a higher rate of abuse than first-time mothers did.

In the 1996 New Mothers Study, only 2 ½ percent reported abuse. The increase reported in the 1999 survey is probably due to the difference in the questions asked. In 1996 the women were asked about a series of events which might have occurred during the 12 months before delivery. One of these events was "Your husband or partner physically hurt you." In the 1999 survey two separate questions on physical abuse were asked. One question asked "During your pregnancy, did any of these people physically abuse you? Check all that apply (my husband or partner, a friend, a family or household member other than husband or partner, someone else)." The second question asked if they were physically abused more often, less often or about the same compared to the 12 months before they became pregnant.

Projected over a year, we can estimate that in 1999, more than 300 North Dakota women experienced violence during their pregnancies. The North Dakota Council on Abused Women's Services reported that they served 144 pregnant women in 1999, indicating that prenatal domestic abuse is underreported in North Dakota.

An additional question in the 1999 survey asked if a doctor, nurse or other health care worker talked to them about being physically abused (hit, slapped, kicked, etc.). Only 21 percent remembered having this topic discussed with them by a health care professional.

A review of current literature documents three main points about violence during pregnancy:

- Violence occurs in 4 to 8 percent of pregnancies.
- Violence is associated with unintended pregnancies and may be related to inconsistent contraceptive use.
- Research is inconclusive about the relationship between violence and pregnancy outcomes. Only two outcomes, mean birth weight and low birth weight, were found to be significantly associated with abuse in more than one study.

For more information, see the June 2000 issue of the Maternal and Child Health Journal, which includes commentaries and research papers presented at the 1999 National Conference on Violence and Reproductive Health: Science, Prevention and Action.

Addressing Domestic Violence in the Clinic Setting

- Initiate routine screening procedures for domestic violence, including sexual violence, and develop a protocol for referral and safety planning for victims who disclose.
- In addition to looking for physical signs of abuse, include the following questions as a standard part of prenatal assessments:
  - ➲ During the past 12 months, have you been physically abused? This includes being hit, slapped, kicked, pushed, choked, grabbed or otherwise physically hurt by someone else.
  - ➲ During the past 12 months, have you been emotionally or verbally abused? This includes yelling, swearing, put downs, threats, jealousy, stalking, and other words or actions intended to control another person.
  - ➲ During the past 12 months, have you been sexually abused? This includes any kind of forced or unwanted sexual activity.
- Learn more about services available to your clients by contacting a shelter or domestic violence service provider in your area.
- When working with a client who is, or who you suspect is, a victim of domestic violence, convey to her that she is not alone, that she is not at fault, that you are available to her and that you will continue to be available to help her in the future, even if she attempts to leave her abuser and later returns.
- When counseling a victim of domestic violence, be aware that she is the best judge of the safest time to leave her abusive environment.
- Help your client plan a safe escape time and route out of her home. The safest routes are usually away from dangerous objects and places, such as the kitchen, bathroom or garage.
- Contact the North Dakota Council on Abused Women's Services at 1.888.255.6240 for training resources, names of local shelters and other emergency assistance, etc. North Dakota law permits law enforcement officers to arrest an offender without a warrant if the officer has probable cause to believe the person has assaulted that person's family or household member.

(Adapted from: Healthy Mothers Healthy Babies POWER News Vol. 2, No. 4 Fall 1996. Source AYUDA, Inc. Legal Aid Consumer Protection, 1736 Columbia Road, NW Washington, DC 20009. Questions from article by: Kershner, M, Long, D, Anderson, JE. Abuse Against Women in Rural Minnesota. Public Health Nursing 15 (6). 1998:422-431.)

Access to Infant Health Care

Insurance Coverage for Infant Health Care

Eleven percent of respondents reported that they either had no insurance or inadequate insurance for their child's health care. "Inadequate" was defined as insurance that doesn't cover regular well-baby checkups and immunizations. Only 37 percent of WIC respondents were covered by private insurance or a managed care program compared to 86 percent of non-WIC respondents. More WIC respondents had their infant's health care paid for by Medicaid or Indian Health Services. While WIC respondents were more likely not to have insurance, non-WIC respondents reported a higher level of inadequate insurance.

Insurance Coverage for Infant

Payer	Primiparas	Multiparas	WIC	Non-WIC	Total
Private insurance	67%	63%	35%	82%	65%
Managed care	3%	4%	2%	4%	3%
Medicaid	21%	19%	48%	3%	20%
Indian Health Service	4%	4%	9%	1%	4%
Military	5%	7%	9%	4%	6%
No insurance	2%	4%	6%	2%	3%
Inadequate insurance	8%	7%	5%	10%	8%
Other	3%	3%	5%	2%	2%

Source of Infant Health Care

Almost 90 percent of respondents reported that their infant received almost all health care from the same health care provider. The remaining respondents received care at one clinic, but saw different providers. WIC respondents were more likely to see different providers in a clinic. WIC and Medicaid respondents were more likely to use emergency rooms or convenience clinics than non-WIC respondents were.

Source of Infant Health Care

	Primiparas	Multiparas	WIC	Non-WIC	Total
Same health care provider	90%	86%	83%	91%	88%
Different providers in clinic	11%	14%	18%	9%	13%
Convenience clinic when sick	5%	4%	6%	3%	4%
Emergency room when sick	3%	3%	6%	1%	3%
Other	4%	3%	5%	2%	4%

Preventive Pediatric Health Care Visits

The American Academy of Pediatrics (AAP) recommends that all healthy infants be seen by a physician at 1, 2, 4, 6, 9 and 12 months of age. Ninety-eight percent of respondents reported seeing the physician within the first two weeks after their infant's birth. Eighty-eight percent saw the physician at two months, 15 percent at three months, and 56 percent at four months (infants would have been about 4 months of age at the time of the survey). One percent of the respondents reported no visits for well-baby care.

Satisfaction With Infant Health Care Visits

More than 90 percent of respondents were very or somewhat satisfied with their infant's health care visits. Primiparas and WIC clients were less satisfied with the visits.

Satisfaction With Infant Health Care Visits

Satisfaction Level	Primiparas	Multiparas	WIC	Non-WIC	Total
Very satisfied	73%	80%	72%	80%	77%
Somewhat satisfied	19%	12%	15%	15%	15%
OK	6%	6%	9%	4%	6%
Somewhat dissatisfied	2%	1%	2%	1%	1%
Very dissatisfied	1%	1%	2%	1%	1%

Suggested Changes for Infant Health Care Visits

More than one-half of the respondents reported that "Everything is great. I wouldn't change anything" about the doctor/clinic visits. The other respondents wanted more information about infant development, more discussion of parents' concerns, and anticipatory guidance on what to expect in future months.

What Parents Would Change About Health Care Visit

Suggestions	Primiparas	Multiparas	WIC	Non-WIC	Total
Wouldn't change anything	47%	61%	53%	57%	55%
What to expect developmentally	12%	7%	9%	10%	9%
Explain procedures in exam	9%	6%	6%	8%	7%
Ask about parents' concerns	7%	6%	8%	5%	6%
Check baby's development	4%	4%	3%	4%	4%
Check vision & hearing	5%	6%	8%	4%	6%
How to promote health habits	8%	4%	5%	6%	6%

Special Medical Conditions

Four percent of respondents (n=43) reported that they had an infant with a special health condition. Women participating in WIC or Medicaid were more likely to report having a special-needs infant.

Less than 2 percent (n=6) reported having problems getting information or referrals for their infant's health care needs.

Home Visits

Visiting a mother with a newborn in the home has long been a feature of public health. Home visiting seeks to improve the lives of children by encouraging changes in attitudes, knowledge and/or behavior of the parents. These changes are nurtured by providing parents with information and social support and by linking families to available community services. Improving parenting skills promotes healthy child development.

In 1996, about one-third of the respondents received home visits. In 1999, 30 percent of the mothers reported receiving home visits. WIC and non-WIC clients were just as likely to receive visits. Thirty-one percent of WIC respondents (n=123) and 30 percent of non-WIC respondents (n=199) reported visits.

The majority (69%) of home visits were made in the first and second weeks of life. Twenty-seven percent received a home visit when the baby was less than 1 week old. Another 42 percent received a home visit at two weeks. Home visits made in the first one to two weeks after birth are especially important in assisting the mother with questions and concerns about breastfeeding to ensure proper nutrition and to correct problems before they become serious enough for the mother to stop breastfeeding. Thirty-one percent of the mothers were visited when the baby was more than 2 weeks old. This decreases the effectiveness of the interventions; for instance, the mother already may have stopped breastfeeding due to concerns that could easily have been addressed in a home visit.

Age of Infant When Visited

Age	WIC	Non-WIC	Total
< 1 week	27%	27%	27%
> 1 but <2 weeks	43%	42%	42%
> 2 weeks	30%	32%	31%

The 322 women who were visited were asked what they found most useful about the home visit. Checking the baby's health, weighing and measuring the baby, and answering questions were the most common answers.

Most Useful Parts of the Home Visit*

Check baby to see if healthy	72%
Weighing & measuring baby	63%
Answering my questions	62%
Offering support and reassurance	44%
Checking on mother's health	40%
Information on programs/services	38%
Help with breastfeeding	26%
Help with baby's special needs	10%
Birth control information	8%
Other	2%
Nothing was helpful	2%

*More than one answer could be checked.

One mother's comment about the usefulness of home visiting stated: "recognized jaundice and contacted Doctor to ask if baby should be seen. Then it was left up to me if I wanted baby seen. Luckily baby was seen and had a very high bilirubin and needed extensive treatment. Thanks to the Health Nurse."

North Dakota Home Visiting Projects

Nationally, several standardized home visit programs have been developed for high-risk populations. Most of these programs focus on the importance of children's early years and the role parents play in shaping children's lives. These programs are based on the belief that one of the best ways to reach families with young children is by bringing services to them, rather than having families seek assistance themselves in their communities. Home visitors see the environment in which families live and assess their needs. The relationship developed between home visitor and family can help to overcome isolation and loneliness and serve as the first step in linking families with available services. Although home visiting occurs throughout North Dakota, two projects have obtained funding for standardized home visiting programs.

The Grand Forks area has adopted the Healthy Families America home visit model, which seeks to expand the availability of high-quality, intensive home visitation services and to create community-wide commitments to these services and others that promote a supportive atmosphere for all new parents. The goals are to promote positive parenting and to prevent child abuse and neglect. These goals are accomplished by enhancing parent-child interaction, fostering growth and development, and improving family functioning. Services begin at birth (or during pregnancy) and can continue until the child is age 5.

The Fargo/Moorhead area has adopted the Prenatal and Early Childhood Visitation Project model and have named their program "Baby Steps," which serves clients in eight counties in their region. Nurses visit mothers, beginning during pregnancy and continuing through their children's second birthday, to improve pregnancy outcomes, to promote children's health and development, and to strengthen each family's economic self-sufficiency. This model had used research protocols with several different high-risk populations. This research model has proven program effectiveness as well as identified ways for improving services.

Access to Infant Care Education

Most Useful Source of Education About Infant Care

Respondents were asked to identify the most useful resource in learning to care for their babies. Experience was the most useful source for both primiparas and multiparas. Women who already had had a child said that their experience with their previous child was the most useful source of information.

Experience babysitting and with nieces and nephews tied with family and friends as the number one source for first-time WIC mothers. Family and friends was the number one choice for non-WIC primiparas.

Most Useful Source for Infant Health Care Information – Primiparas

	Non-WIC	WIC	Survey
Source	Primiparas	Primiparas	Total
Family and friends	24%	24%	15%
My own study	22%	12%	12%
Experience with other children	17%	24%	32%
Hospital nurse	17%	9%	9%
Doctor/clinic nurse	5%	11%	8%
Clinic education packet	4%	1%	2%
Prenatal classes	2%	4%	2%
My college education	2%	1%	1%
"Parenting: The First Year"	1%	2%	2%
Public health/WIC	1%	10%	2%
Home visit nurse	1%	1%	1%

Most Useful Source for Infant Health Care Information – Multiparas

	Non-WIC	WIC	Survey
Source	Multiparas	Multiparas	Total
Experience with other children	58%	66%	32%
Family and friends	9%	9%	15%
My own study	9%	5%	12%
Hospital nurse	6%	5%	9%
Doctor/clinic nurse	8%	8%	8%
Clinic education packet	2%	2%	2%
Prenatal classes	<1%	1%	2%
"Parenting: The First Year"	3%	<1%	2%
Public health/WIC	<1%	2%	2%
Home visit nurse	1%	1%	1%
My college education	2%	<1%	1%

Baby Steps Keepsake Book

In 1992, the North Dakota Department of Human Services and the North Dakota Department of Health developed and began distributing a prenatal and infant care booklet called Baby Steps Keepsake. This type of booklet has been used with some success in other countries to improve prenatal and infant health care. The booklet, which provides information about healthy pregnancies and infant care, includes charts for recording important events during pregnancy and milestones in the baby's life. It is available free of charge to physicians, public health programs, hospitals, WIC programs, etc., for distribution to prenatal clients and to mothers of newborns. In 1999, only 14 percent received and used the book, compared to 20 percent in 1996. Seventeen percent, down from 25 percent in 1996, received it but didn't use it. Sixty-nine percent did not receive the booklet (up from 55% in 1996). Although copies of these books are still available from the Department of Human Services Medical Services Division, additional copies will not be printed.

Use of *Baby Steps Keepsake* Book

	1996	1999
Received and used booklet	20%	14%
Received booklet but didn't use	25%	17%
Did not receive booklet	55%	69%

SIDS-Related Behaviors

Sudden Infant Death Syndrome (SIDS) is the sudden death of an infant younger than 1 year of age, which remains unexplained after all possible causes have been ruled out through autopsy, death scene investigation and medical history. SIDS affects families of all races, religions and income levels. It occurs during sleep and strikes without warning.

Several factors increase the risk of SIDS. The American Academy of Pediatrics (AAP) emphasizes the importance of proper positioning of infants for sleep. The AAP also recommends increased attention to other modifiable environmental factors such as the sleep surface, bedding, overheating and smoking. For more information about this topic, see the American Academy Policy Statement "Changing Concepts of Sudden Infant Death Syndrome: Implications for Infant Sleeping Environment and Sleep Position" (RE9946) Pediatrics 105:3 pp. 650-656 March 2000.

Sleep Position

Babies who sleep on their backs have the lowest rates of SIDS. The 1999 survey shows a significant increase in the percentage of infants sleeping on their backs compared to the 1996 survey. In 1999, 91 percent of infants were sleeping on their backs or sides, compared to 79 percent in 1996.

Comparison of Sleep Position 1996-1999

Sleep position	1996	1999
Back	57%	73%
Side	22%	18%
Stomach	22%	9%

A high percentage of infants are still placed to sleep on their sides. Although much safer than stomach sleeping, there is a higher risk of SIDS for infants placed on their sides (probably due to the relative instability of this position). More infants of WIC participants, Medicaid clients and American Indians were likely to be placed on their sides compared to the rest of the population. In the 1996 New Mothers' Survey, a high rate of sleeping on stomachs was found among military families. This still holds true for the 1999 survey.

Sleep Position at Time of Survey

Sleep position	WIC	Non-WIC	All Respondents
Back	68%	76%	73%
Side	23%	15%	18%
Stomach	9%	8%	9%

Sleep Position by Source of Payment for Infant Care

Position	Insurance	Military	IHS	Medicaid	Cash
Back	75%	69%	62%	69%	68%
Side	17%	17%	33%	23%	24%
Stomach	8%	14%	5%	8%	8%

Health Care Provider Advice About Sleep Position

When mothers were asked about their health care provider's advice about baby's sleep position, the survey found that the greatest percentage of mothers were advised by health care providers to put their babies to sleep on either the back or side, which is not the most appropriate message. In addition, almost twice as many WIC mothers reported that they were given no advice about sleep position.

Health Care Provider Advice About Baby's Sleep Position

Position	WIC	Non-WIC	Total
Back only	34%	36%	35%
Either back or side	50%	54%	53%
Side only	5%	4%	4%
Stomach	<1%	<1%	<1%
No advice	9%	4%	6%
Other	2%	2%	2%

When asked why they chose a certain sleeping position for their infants, fewer WIC clients credited advice from their physician or nurse, and fewer WIC mothers stated their reason was to prevent SIDS. A greater number of WIC mothers identified fear of choking as the reason for choosing a sleep position. This concern should be clearly addressed by the health care provider.

Reason for Choosing Sleep Position*

Reasons	WIC	Non-WIC	Total
Doctor or nurse told me to	41%	54%	49%
To prevent SIDS	70%	78%	75%
Baby sleeps better	46%	35%	39%
I sleep this way	8%	5%	6%
My other children sleep this way	16%	12%	14%
Afraid baby will choke	24%	19%	21%
Other	6%	4%	5%

* More than one answer could be given.

The Sleeping Environment

Sleeping in an overheated environment, sleeping on a soft surface or in an adult bed, sleeping with many layers of clothing or blankets, and sleeping with pillows and other soft objects have all been linked to an increased risk of SIDS. It is important that health professionals educate parents and caregivers about proper bedding and sleep environments for infants, as well as other risk factors, to help decrease the risk for SIDS. As shown in the chart below, there were significant differences in sleeping environments between the WIC and non-WIC populations.

Infant Sleeping Location

Location	WIC	Non-WIC	Total
Crib	64%	75%	71%
Bassinet or cradle	22%	17%	19%
Adult bed	11%	5%	7%
Infant car seat	1%	2%	2%
Other	2.6%	1%	1.5%

Other Risk Behaviors

Although premature babies sleep with caps while they are in the hospital to help regulate body temperature, most full-term babies should not be sleeping with caps. In the 1999 New Mothers' Survey, one-third of mothers reported that their infants slept in caps when younger. Only 52 of these infants were premature (gestational age < 37 weeks). Of the remaining 263 infants, 205 slept in caps until they were 2 weeks of age or older. This represents almost 20 percent of the survey population. More than 45 infants (premature and full term) slept in caps for eight weeks or more after birth.

Risk Factor Associated With SIDS

Risks	WIC	Non-WIC	Total
Sleep on a pillow	8%	3%	5%
Sleep with more than two layers of clothes	1%	1%	1%
Currently wear a cap at night	1%	<1%	1%
Slept with a cap at night, when younger	36%	31%	33%
Sleeping room temperature > 72 degrees	32%	17%	23%

Smoking and SIDS

Smoking during pregnancy has been identified as a major risk factor in almost every major study of SIDS. Other studies have shown that environmental smoke in a baby's environment is a separate SIDS risk factor from smoking during the prenatal period.

Secondhand Smoke Exposure for Infants

The risk of Sudden Infant Death Syndrome (SIDS) increases with both the mother's smoking during pregnancy and with secondhand smoke in the baby's environment. Sixty-eight percent of women remembered a health care provider telling them of the harm of secondhand smoke to an infant.

Respondents were asked about smoking behaviors around the baby. As expected, infants in families where either the mother or another household member smoked were at greater risk of exposure to secondhand smoke.

Smoking Behaviors Around Baby

Behavior	Smokers in Household	No Smokers in Household	Total
No one smokes in the house or car (smokers go outside)	44%	86%	77%
Smoking restricted to one room.	22%	4%	7%
No smoking when baby is in room or car	21%	5%	8%
Smoking allowed anytime in house or car	10%	2%	4%
Other	3%	3%	3%

For Future Study

Questions this survey did not answer include the effect of specific content of the health care provider's "no smoking" message. Did health care providers discuss the relationship between SIDS and smoking behaviors? If SIDS was discussed, did more of the women who heard this message quit smoking during pregnancy and into the postpartum period? Would a stronger message about the relationship of prenatal and passive smoking to SIDS increase the rates of smoking cessation, especially among those who smoke more than six cigarettes a day?

Problem Situations

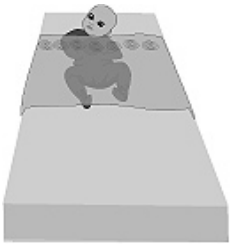
The mothers were asked if they had situations that made it hard to keep their infants away from cigarette smoke. Visiting relatives and friends who smoke made it difficult to protect their infants from secondhand smoke.

Problem Situations With Smoking Around Baby

Situation	Primiparas	Multiparas	WIC	Non-WIC	Total
Grandparents in our house	4%	5%	5%	4%	5%
Grandparents in their house	20%	16%	21%	17%	18%
Friends/relatives in their house	15%	12%	20%	9%	13%
Friend/relatives in our house	5%	3%	6%	2%	4%
Daycare provider	1%	1%	2%	<1%	1%
No problems	68%	70%	60%	75%	69%

Safe Sleep – Sweet Dreams

Larry Burd, Ph. D. and Kari Fjelstad, M.D.
Department of Pediatrics
University of North Dakota School of Medicine and Health Sciences
Box 9037
Grand Forks, N.D. 58502-9037
701.777.3683



1. The baby's crib:
   - No bumper pads
   - No water bed or extra mattress
   - No pillow

2. Put the baby down:
   - Sunny side up – supine, on back
   - At the foot of the crib, not the head

3. Maintain a constant temperature in the room, 65 to 70 degrees

4. Dress the baby in diaper, sirt, and sleeper; no hat, no extra clothing

5. Cover the baby with one or two blankets, no more

6. No smoking or drinking  

Breastfeeding

Breastfeeding Initiation and Duration

The Healthy People 2010 breastfeeding objectives are to "increase to at least 75 percent the proportion of mothers who breastfeed their babies in the early postpartum period" and "to increase to at least 50 percent the proportion who continue breastfeeding until their babies are 5 to 6 months old." Currently, only 58 percent of North Dakota infants are breastfed when they leave the hospital (North Dakota Breastfeeding Report, 1999). Survey respondents had a higher rate of breastfeeding, with 71 percent initiating breastfeeding. Although the American Academy of Pediatrics (AAP) recommends "that breastfeeding continue for at least 12 months, and thereafter for as long as mutually desired," only 38 percent of infants were breastfed past 12 weeks of age.

Breastfeeding is the best feeding method for both infants and mothers. Breastmilk protects against infections and lowers the risk of asthma, allergies and colic. Recent studies also have shown that breastfed infants are less likely to become obese adults. Breastfed infants usually have fewer feeding problems than formula-fed infants do. Mothers who breastfeed may be protected against some forms of cancer and have a lower risk of osteoporosis.

The American Academy of Pediatrics recommends that all pediatricians "promote and support breastfeeding enthusiastically." Seventy-one percent of the survey respondents remember their health care provider giving them information about breastfeeding either during pregnancy or after the baby was born. Only 15 percent took a breastfeeding class during pregnancy.

Breastfeeding Duration

Length of BF	Primiparas	Multiparas	WIC	Non-WIC	Total
BF >12 weeks	36%	40%	33%	41%	38%
BF > 6, < 12 weeks	11%	9%	9%	10%	10%
BF > 2, < 6 weeks	16%	11%	14%	12%	13%
BF < 2 weeks	10%	9%	11%	8%	9%
Did not breastfeed	27%	31%	31%	28%	29%

Hospital Experiences

Hospital practices have been shown to influence the success of duration. In the 1999 New Mothers' Survey, a series of questions was asked about the woman's experience in the hospital following her infant's birth. For instance, giving a gift pack of formula to breastfeeding mothers has been shown to decrease the duration of breastfeeding, but more than 80 percent of the women received free formula.

Hospital Experiences That Support Breastfeeding

	BF mothers
Baby stayed in same room	52%
Baby fed only breastmilk	46%
Staff helpful with BF	59%
BF whenever wanted	50%
Gave BF support call #	60%
Did not get formula gift pack	17%

Is Your Hospital Baby Friendly?

In 1991, the World Health Organization and UNICEF started promoting breastfeeding worldwide by recognizing hospitals that met the 10 steps of the Baby Friendly Hospital program. If hospitals answer no to any of these questions, a woman's plans to breastfeed her infant may be thwarted. An article in the September 2001 Pediatrics Journal reports on the evaluation of the Baby-Friendly Hospital initiative implemented at the Boston Medical Center. After full implementation of the Ten Steps to Successful Breastfeeding leading to Baby-Friendly designation, the breastfeeding initiation rate at BMC increased from 58 percent in 1995 to 77.5 percent in 1998 and 86.5 percent in 1999.

Baby Friendly Hospitals Should:

1. Have a written policy on breastfeeding that all health care staff know.
2. Train all health care staff so they can make the policy work.
3. Teach all expectant mothers what is good about breastfeeding and how to get started.
4. Help mothers start breastfeeding within one-half hour after birth.
5. Show mothers how to breastfeed and how to keep their milk supply if they have to be separated from their baby.
6. Give newborns no food or drink other than breastmilk unless medically necessary.
7. Practice rooming-in; in other words, allow mothers and babies to remain together 24 hours a day.
8. Encourage baby-led feedings -- no schedules.
9. Give no pacifiers (also called dummies or soothers) to breastfed babies.
10. Encourage the growth of breastfeeding support programs and refer mothers to them.

Breastfeeding and Employment

The 1996 New Mothers' Survey and previous surveys of the North Dakota WIC population have shown that many women either do not initiate breastfeeding or stop breastfeeding early because they are going back to work or school. Although, in the 1999 survey, women were not asked about reasons for not initiating or for quitting early, a question was asked about current employment status. At the time of the survey, when their infants were 3 to 4 months of age, 61 percent of the respondents were employed. A higher percentage of currently employed women did not initiate breastfeeding (32%) compared to unemployed women (25%). Employed women stopped breastfeeding early – only 32 percent breastfed for more than 12 weeks, compared to 47 percent of unemployed women.

Breastfeeding (BF) and Employment Status at Time of Survey

	Unemployed	Employed	Total
Did not breastfeed	25%	32%	30%
BF < 8 weeks	25%	27%	26%
BF > 8, < 12 weeks	3%	8%	6%
BF > 12 weeks	47%	32%	38%

Supporting Breastfeeding in the Workplace

Employers play a big role in helping mothers be successful at breastfeeding. The workplace environment should enable mothers to continue to breastfeed as long as the mother and baby desire. Supporting employee efforts to breastfeed can require very little space or expense. Work-site programs that support a breastfeeding mother and her infant may include:

- Providing a private space. This could be as elaborate as a separate room with a rocking chair or as simple as a partition in a storage area. Or, it could be something as simple as allowing a mother to close her office door.
- Allowing adequate breaks for a mother to pump (with a good electric pump a mom can finish pumping in 15 to 20 minutes). Where possible, flexible work hours, job sharing or part-time work is also helpful.
- Purchasing a hospital - grade electric pump for the workplace that mothers could share (average cost: $550).
- Providing a small refrigerator for safe storage of milk.
- Developing a written personnel policy that supports a breastfeeding mother. Such a policy shows that a company is committed to promoting and supporting this important health benefit. While many companies don't have a policy against breastfeeding, a written policy supporting breastfeeding is a powerful tool.

Injury Prevention

Shaken Baby Syndrome

Shaken baby syndrome is a form of child abuse that occurs when a child is vigorously shaken or slammed. Shaking causes a baby's head to whip back and forth, slamming the brain repeatedly against the skull. It takes only a few seconds to cause serious, lifelong brain damage or death.

Never, Never Shake a Baby Campaign

In 1997, the Department of Health began a two-year shaken baby syndrome prevention campaign with a message of Never, Never Shake a Baby. To help evaluate the campaign, the New Mothers' Survey asked questions about the message. More than 97 percent of the respondents indicated they had seen or heard the message.

Shaken Baby Campaign*

Message locations	Percentage
Brochure	71%
Baby rattle distributed in the hospital	57%
Poster	56%
Billboard along highways/roads	44%
Videotape	29%
Radio	17%
Milk carton	12%
Other**	14%
Never heard the message	3%

*More than one answer could be given.
**Other includes doctor, nurse, WIC Program, on TV, in classes, etc.

Prevent Shaken Baby Syndrome

- Learn how to cope with a crying or fussy baby.
- Make sure all of the baby's caregivers have experience with caring for a baby and know how to calmly soothe an unhappy baby.
- Never shake a baby when you become frustrated or angry.

In 1999, 71 percent of the respondents remembered a health care professional talking to them about the dangers of shaking a baby. This compares to only 51 percent in the 1996 survey. When asked if a doctor, nurse or other health care professional had talked to them about ways of comforting a baby (a recommendation to prevent shaken baby syndrome), only 56 percent of the mothers said yes. This compares closely to 54 percent in the 1996 survey. First-time mothers were more likely to receive this information.

Subjects Discussed With Health Care Provider

Topic Survey	Primiparas	Multiparas	Overall
Behaviors to expect from baby	66%	50%	59%
How to determine baby's needs	67%	51%	58%
Shaking can damage baby	78%	65%	71%
How to comfort baby	68%	47%	56%

Ways To Calm a Baby Include:

- Take baby for a walk outside.
- Sing to baby.
- Check to see if baby is hungry.
- Rock with baby in a rocking chair, supporting baby's head.
- Take baby for a ride in the car.
- Call someone for help or to give you a break.
- If all fails, put baby in a safe place for a while (like a crib), shut the door and go to another room where you can't hear the crying; check on baby every 10 minutes.

Other Infant Safety Issues

In another series of questions, mothers were asked if health professionals had discussed infant safety issues. Eighty-four percent of respondents reported that a doctor, nurse or other health care professional talked to them about using a car safety seat for their baby. However, only 41 percent remembered discussion of other safety tips, such as crib construction, dangers of baby walkers, dangers of playpens, etc. Again, first-time mothers were more likely to remember discussing safety topics (47% primiparas vs. 36% of multiparas).

It is important to discuss safety issues with second-time mothers. Because new safety issues arise all the time, an infant care practice or baby care product that may have been commonly used in a previous pregnancy may no longer be recommended.

Infant Car Seat Use

Of all the infants in the survey, 81 percent were riding in the back seat facing backward (the correct position for all infants in all cars). Riding in the back seat is absolutely essential if the car has a functioning passenger-side air bag. In 1999, 39 percent of the infants rode in cars that had air bags, compared to only 16 percent in the 1996 survey. Of the infants who rode in cars with airbags, 92 percent were placed in the back seat facing backward.

The safest place for any child younger than 13 is in the back seat appropriately restrained in a car seat or seat belt.

Source of Infant Car Seats

Twenty-one percent of respondents either purchased a used car seat or received a used one from a friend or relative. The danger in this practice is that the history of the car seat, particularly its use in a crash, may not be known to the recipient. Furthermore, instructions about how to use the car seat may not accompany used car seats.

Car seat checkups in North Dakota show that four out of five car seats are used incorrectly. To adequately protect a baby in a crash, car seats must be used according to the manufacturer's instructions.

Seat Belt Use in Pregnancy

Less than one–half of the women (42%) remembered their health care providers talking about the importance of wearing a seat belt during pregnancy. This was down from 47 percent in the 1996 survey.

Because pregnancy is a critical time for women to wear seat belts, the issue should be discussed during prenatal visits. Unrestrained pregnant women and their babies are vulnerable to complications of miscarriage, preterm labor and internal injuries associated with crashes. It has been shown that correct seat belt use reduces both maternal and fetal morbidity and mortality following motor vehicle crashes.

Appendix

Title V Programs

CSHS Division: The Children's Special Health Services (CSHS) program is part of the North Dakota Department of Human Services, Division of Medical Services. CSHS, like the MCH Division, is funded in part by Title V Block Grant Funds. CSHS provides and promotes health care services for children who have special health care needs. This program also facilitates development of coordinated systems of care throughout North Dakota.

MCH Division: The Division of Maternal and Child Health is part of the Preventive Health Section of the North Dakota Department of Health. Funding for maternal and child health programs is provided by the U.S. Department of Health and Human Services Title V Block Grant. Programs and services administrated by the division include:

- **Abstinence Program:** Promotes the health of youth through abstinence-only education.
- **Adolescent Health Program:** Provides strategies to promote the health of adolescents.
- **American Indian Services:** Supports a variety of services for mothers and children on the state's reservations.
- **Arthritis Program:** Promotes a statewide coordinated effort aimed at prevention, control and support for people who have arthritis.
- **Domestic Violence/Sexual Assault Program:** Provides grants to domestic violence/rape crisis, law enforcement and prosecution agencies to reduce and prevent violence against women.
- **Family Planning Program:** Offers education, counseling, exams, lab testing, infertility services and contraceptives.
- **Genetic and Birth Defects Counseling Services:** Provides support for the UND School of Medicine, which provides a statewide clinical genetics/birth defects program offering genetic evaluation and counseling.
- **Injury Prevention Program:** Promotes prevention of injuries through projects on seat belts, child passenger safety, bike helmets, home and product safety and other injury-specific topics.
- **Newborn Metabolic Screening Program:** Coordinates the testing of all newborns for serious inherited medical conditions that are present at birth.
- **Nursing Services:** Supports a variety of services for mothers and children through local public health nurses.
- **Nutrition Program:** Promotes healthy eating and physical activity habits for children and their families.
- **The Optimal Pregnancy Outcome Program (OPOP)**: Provides nursing, social and nutritional services to pregnant women.
- **Oral Health Program:** Provides preventive education, screening and consultation, and administers school fluoride programs.
- **Sudden Infant Death Syndrome Program (SIDS):** Provides support, education and follow-up to those affected by a sudden infant death.
- **Women's Health Services:** Coordinates with other state and local agencies to promote women's health.
- **Special Supplemental Nutrition Program for Women, Infants and Children (WIC):** Provides nutrition education, nutritious food, breastfeeding promotion and support, and referrals to health and support services.

Bibliography

Broussard AB, Reynolds SW, Margaglio TM. Smoking and childbearing: neonatal complications and passive smoking. IJCE. 1997; 12(1): 38-45.

Brown S, ed. Prenatal Care—Reaching Mothers, Reaching Infants, Summary and Recommendations. Washington, D.C.: National Academy Press; 1988.

Brown S, Eisenberg L, eds. The Best of Intentions—Unintended Pregnancy and the Well-Being of Children and Families. Washington, D.C.: National Academy Press; 1995.

Brown JE. Fetal Origins of Obesity. Presented at 2001 Annual Meeting of the Association of State and Territorial Public Health Nutrition Directors; June 11, 2001; San Francisco, Calif.

Children's Hospital Merit Care. The Shaking Shocker. Fargo, N.D.

Committee on Infectious Diseases, Peter G, Halsey NA, Marcuse EK, Pickering LK, eds. 1994 Red Book Report of the Committee on Infectious Diseases 23rd Edition. Elk Grove Village, Ill. American Academy of Pediatrics; 1994.

Cook PS, Petersen RC, Moore DT. Alcohol, Tobacco, and Other Drugs May Harm the Unborn. Haase TB, ed. DHHS Publication No. (ADM) 90-1711, Rockville, Md; 1990, reprinted 1994.

Fiore MC, Baily WC, Cohen SJ, et. al. Treating Tobacco Use and Dependence. Quick Reference Guide for Clinicians. Rockville, Md: U.S. Department of Health and Human Services, Public Health Service; October 2000.

Healthy Mothers Healthy Babies POWER News. Fall 1996; 2(4).

Kapperud G, Jenum PA, Stray-Pedersen B, Melby KK, Eskild A, Eng J. Risk factors for toxoplasma gondii infection in pregnancy. Am J Epidemiology. 1996; 144(4): 405-412.

Kershner M, Long D, Anderson JE. Abuse against women in rural Minnesota. Public Health Nursing. 1998; 15 (6): 422-431.

Kiwanis International. Don't Shake A Baby!

Minnesota Department of Health. An Expectant Mother's Guide to Eating Minnesota Fish. May 2001. Available at www.health.state.mn.us

Mueller BA, Schwartz SM. Risk of recurrence of birth defects in Washington state. Paediatric and Perinatal Epidemiology. 1997; 11(Suppl. 1): 107-118.

Nelson WE, Behrman RE, Kliegman RM, Arvin AM, eds. Nelson Textbook of Pediatrics, 15th edition. Philadelphia, Pa.: W. B. Sanders Company; 1996.

North Dakota Department of Health. Fish Consumption Advisory for Waters of North Dakota. January 2001. Available at www.health.state.nd.us/ndhd/environ/wq.

Philip BL, Merewood A, Miller LW, et al. Baby-friendly hospital initiative improves breastfeeding initiation rates in a US hospital setting. Pediatrics. 2001; 108: 677-681.

Preparing for Pregnancy. A National Survey of Women's Behavior and Knowledge Relating to Consumption of Folic Acid and Other Vitamins and Pre-pregnancy Care. White Plains, N.Y.: March of Dimes Birth Defects Foundation; 1995.

Shaw GM, O'Malley CD, Wasserman CR, et al. Maternal periconceptional use of multivitamins and reduced risk for conotruncal heart and limb reduction defects among offspring. American Journal of Medical Genetics. 1995; 59: 536-545. (From a California Birth Defects Monitoring Program publication: "Multivitamin Use and Heart and Limb Defects.")

Shaw GM, Lammer EJ, Wasserman CR, O'Malley CD, Tolarova MM. Risks of orofacial clefts in children born to women using multivitamins containing folic acid periconceptionally. Lancet. 1995; 346: 393-396. (From a California Birth Defects Monitoring Program publication: "Multivitamin Use and Oral Clefts.")

Torfs CP, Katz EA, Bateson TF, Lam PK, Durry CJR. Reference: Maternal medications and environmental exposures as risk factors for gastroschisis. Teratology. 1996; 54: 84-92. (From California Birth Defects Monitoring Program publications entitled "Gastroschisis and Medications" and "Work, Hobbies and Gastroschisis.")

U.S. Department of Health and Human Services Public Health Service Healthy People 2000 Progress Review Maternal and Infant Health. Prevention Report. Washington, D.C.; Fall 1996.

U.S. Department of Health and Human Services. Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, D.C.: U.S. Government Printing Office, November 2000. Available at www.health.gov/healthypeople.

U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, Md: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.

U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition. Consumer Advisory: An Important Message for Pregnant Women and Women of Childbearing Age Who May Become Pregnant. March 2001. Available at www.fda.gov.

Venutra SJ, Martin JA, Mathew MS, Clarke SC. Advance report of final natality statistics, 1994. Monthly Vital Statistics Report. Atlanta, Ga: Centers for Disease Control and Prevention/National Center for Health Statistics. June 1996; 44 (11-S): 1-45.

Violence and Reproductive Health. Spitz AM, ed. Special Issue: Maternal and Child Health Journal. June 2000; 4(2).

Inside back of the cover

For a Healthy Pregnancy

Take a daily multivitamin supplement or eat a fortified cereal daily (which contains 0.4 milligrams of folic acid) before you become pregnant and in the early months of pregnancy.

If there is any chance you are pregnant, don't drink.

Stop smoking.

Learn the signs of pregnancy.

Get early, regular prenatal care.

Eat a balanced diet. Since a fetus is nourished by what a mother eats, it can suffer if the mother eats poorly.

Gain enough weight, but not too much. Doctors recommend that a woman of normal weight gain 25 to 35 pounds.

Avoid drinking alcohol, using illicit drugs, or taking prescription or over-the-counter drugs not prescribed by a doctor who is aware of your pregnancy. Drug and alcohol use limit fetal growth and can cause serious birth defects and mental retardation.

Exercise moderately every day.

Practice safe food preparation. Wash hands frequently before and during food preparation. Cook meats thoroughly, wash raw fruits and vegetables, and drink only pasteurized milk and juices.

When you use cleaning products, wear rubber gloves and make sure there is plenty of ventilation where you are working.

Stay away from paint fumes. They may harm your unborn child. Let someone else paint your baby's room.

Stay away from insect poison and weed killers. Let someone else do jobs in the garden or work with your plants if these products have been used.

If you're under stress, share that information with your health care provider. Having someone listen to you can help. Give yourself some time each day to relax. Exercising and eating regularly can help reduce stress.

Let your doctor know about any medicines you are taking. Some are not safe for your baby. Some medicines may stain your baby's teeth. A drug called Accutane, which is used to treat acne, is not safe for your baby. Pain relief products, cold medicines and drugs to clear your sinuses may have aspirin or other harmful ingredients. Aspirin can cause bleeding problems for you and your baby.

Wear your seat belt.

Practice good dental care. Floss every day, brush at least twice a day, and visit your dentist.

Keep Your Baby Healthy

Breastfeed your baby. Learn as much as you can before pregnancy, ask for help, and get off to a good start.

Good nutrition makes for a healthy child. As your child grows, provide a variety of nourishing foods for regular meals and planned snacks.

Put baby to sleep on his or her back on a firm mattress. Keep baby warm, but not overheated.

If you or your partner smoke, quit. If you can't quit, smoke outdoors to protect your child against the dangers of secondhand smoke.

Have your baby immunized on time. It's the best defense against many dangerous childhood diseases.

Everyone should buckle up in the car, including pregnant women. Learn how to use your infant/child car safety seat appropriately. The safest place for the baby is in the back seat facing backwards.

Give your home a safety check. Install smoke detectors, store poisonous substances out of your child's reach, and know how to access emergency services.

Prevent violence by setting a good example for your children. Remember that words can hurt. Give your kids plenty of love and attention.